

RELATIONSHIPS BETWEEN CHILD LIFE EVENTS STRESS,
PARENTING STRESS, AND
CHILD VERBAL COGNITIVE FUNCTIONING
OF LOW INCOME PRESCHOOLERS

By

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This study examined child life events stress, parenting stress, child verbal cognitive functioning, and the demographic variables maternal age, employment status, marital status, education level, and ethnicity in 49 randomly selected Head Start preschooler-mother dyads, extending research with older students. Child verbal cognitive functioning (language and concepts) was measured by the Developmental Indicators for the Assessment of Learning-Revised (DIAL-R), child life events by the Coddington Life Events Record-Preschool Version (30 events in seven areas), and parenting stress by the Parenting Stress Index (101 items in thirteen areas). Mothers completed the stress measures and demographics under the researcher's supervision. Head Start provided DIAL-R scores. Data were analyzed using multiple regression.

Results revealed that the variables more indicative of higher child verbal cognitive functioning were those revolving around relationships between the preschooler and important adults, namely mothers' acceptance of child, and entrance of stepfather and relatives; along with low-income mothers' dissatisfaction with the circumstances under which they raised their child. However, sibling births were related to lower

DIAL-R scores. Increasing maternal age was a strong predictor of higher DIAL-R scores as was mother being employed. Both significant positive and negative correlations were found between child life events stress and parenting stress. A positive relationship was discovered between life events and parenting stress in the form of mothers experiencing more stress in work and personal relationships with adults. On the other hand, negative relationships were found between life events and parenting stress with particular focus on lower stress in mother-child psychological closeness. White mothers reported more life events stress while minority mothers reported more parenting stress.

The theory of viewing stress as change and the differing reaction to stress either being one of resiliency or vulnerability was confirmed at least by this sample of low-income preschoolers and their mothers. Overall, both higher and lower stress were related to higher and lower child verbal cognitive functioning. Perhaps the most significant conclusion was that low-income, Head Start preschoolers with higher verbal cognitive functioning scores had close relationships with a greater number of important adults.

CHAPTER 1 INTRODUCTION

Statement of the Problem

One solution to the differential performance between children from lower- and upper-income backgrounds has been early intervention in the form of structured preschool experiences. This approach is supported by studies that link cognitive functioning such as language and conceptual knowledge tasks to children's experiences early in life (e.g., Bernstein, 1961; Hess & Shipman, 1965; Jones, 1972). In particular, verbal cognitive performance has been linked to characteristics and aspects of the home and the quality of the relationship between the parent and the child. The home environment, including physical surroundings and parent-child interactions, is thought to substantially contribute to cognitive functioning and performance in children (c.f., Caldwell & Bradley, 1984; Jones, 1972; Laosa, 1982a, 1982b; Sameroff & Seifer, 1983; Werner & Smith, 1982).

Early childhood intervention programs have had success in improving social skills and providing temporary gains in cognitive functioning, but long-term intellectual gains in low-income children have not been maintained overall for program participants (e.g., Evard, 1988; Brown & Rosenbaum, 1984). For example, Evard (1988) reviewed almost 40 studies assessing early childhood education program elements in home or preschool intervention approaches. In Evard's review article, home interventions were programs with home visits by staff to teach mothers how to interact to be more effective teachers of their young children. The preschool interventions were school or classroom-based methods of guiding young children in group situations such as those found in nursery schools.

The conclusion of Evard's review of these 38 program evaluations was that the home intervention programs were generally beneficial in their ability to consistently produce gains in the child's IQ and cognitive functioning (e.g., achievement tests). Benefits of parental involvement elements present in some of the school-based early education preschool programs were seen, reiterating the importance of the parent when these programs were evaluated (Lazar & Darlington, 1981). However, findings to support the main effects of the school-based preschool participation program elements on IQ and cognitive functioning were more inconclusive than findings from the home-intervention programs. The evaluators in Evard's study were consistent in finding that

low socioeconomic participating preschool children when compared to like counterparts, always fared better on IQ gains and academic achievement scores. However, when these disadvantaged program participants were compared to middle-class average students, in most cases, the treated children's performance was not comparable. These results confirmed that low socioeconomic students, even after intervention, were still in jeopardy. (p. 43)

Because the home-based programs were generally more effective in terms of advancing cognitive development for preschool children, an examination of the critical components of home-based programs is essential. In particular, verbal performance continues to be a major concern for programs serving low-income preschoolers in the 1990's. For example, a Head Start Application Grant (Alachua County School Board, 1993) stated that, "children from economically disadvantaged families display deficits in the area of language development when they enter kindergarten, and these deficits are difficult to remediate" (p. 2).

The home environment and the child-rearing atmosphere have recently been analyzed in terms of child stress and parenting stress on how they relate to the performance of low-income children as compared to their middle-class counterparts on verbal cognitive tasks (speech and language and conceptual knowledge). Evard (1988) found that an underlying theme in the assessment of early childhood intervention programs for low-income children was stress in the child as a contributing factor to his/her lower cognitive

functioning. Stress developed as a combination of factors from the home environment and from the school setting. Brown and Rosenbaum (1984) also contended that stress is related to lower cognitive and intellectual functioning but believe that the context of the environment, in particular the child-rearing home environment, is more influential than the school environment in being a source of stress. It is known that the breakdown under stress of areas related to speech and language can begin early in a child's life (e.g., Brown & Rosenbaum, 1984; Humphrey & Humphrey, 1985; Murphy & Moriarty, 1976). For example, Murphy and Moriarty (1976) studied indices of vulnerability which they defined as "susceptibility to stress" in middle-class preschool children. The investigators wrote that "poor speech was both a reflection of stress and a source of vulnerability" (p. 229).

Children in low-income families grow up under more stressful life conditions both from the environment (e.g., noise, crowding, violence) and from stressful life events (e.g., birth and death of siblings and parents, loss of jobs by parents) than children from upper income classes. Researchers have found that persons who are in low socioeconomic (SES) groups experience more negative life events and have more problems with general psychological well-being than those in higher SES groups (e.g., Dohrenwend & Dohrenwend, 1974; Gersten, Langner, Eisenberg, & Simcha-Fagan, 1977; Makosky, 1982). Further, environmental conditions such as poverty (correlated with low income, lack of education, unemployment, and single parenthood) have been shown to be stressful and to have a detrimental impact on parental attitudes and behavior (e.g., Belle, 1982; Conger, McCarty, Yang, Lahey, & Kropp, 1984; Hastings-Storer, 1991; Longfellow, Zelkowitz, & Saunders, 1982).

Researchers have found that demographic variables such as parental educational level, employment status, marital status, age, and ethnicity are related to the stress found in adults and children. Parental educational level has been related to stress in parents (Belsky, 1984; Conger et al., 1984; Hastings-Storer, 1991) and in children (Gersten, Langner, Eisenberg, & Simcha-Fagan, 1977; Werner & Smith, 1982). The general finding is the

lower the parental educational level, the more stress is present in both the parent and child. Employment status and marital status have been connected with stress in parents (Conger et al., 1984; Hastings-Storer, 1991; McLoyd, 1990; Thompson & Ensminger, 1989; Weinraub & Wolf, 1983) and in children (Gersten et al., 1977; Shinn, 1978; Werner & Smith, 1982). In this case unemployment or single parent status is related to higher levels of stress present in the parent and the child. Age of the parent has been found to be related to levels of stress in adults (Beard, 1982; Samuelsson, 1982; Swanda & Kahn, 1986) and children (Abidin, 1990; Belsky, Lerner, & Spanier, 1984). As age of the mother increases, less stress is present in the adult and her child. Finally, ethnicity has been found to be associated with stress in parents (Hastings-Storer, 1991; Norris, 1992) and children (Coddington, 1972a, 1972b; Hastings-Storer, 1991). The general trend is that whites report more life events while minorities report more stress about relationships.

Numerous researchers have also found these variables to be related to the child's cognitive functioning. Parental educational level and employment status have been related to cognitive functioning in children in many studies. The two variables are also linked together as well. Low educational level of parents and/or unemployment in parents has been connected with lower cognitive functioning in the child (e.g., Laosa, 1982a, 1982b; McIntire, 1991; Werner & Smith, 1982; Zill & Peterson, 1982). Marital status has also been connected to child cognitive functioning (Allison & Furstenberg, 1989; Prince, Kiely, Boros, & Engelmann, 1972; Shinn, 1978; Werner & Smith, 1982). Being raised by a single parent and/or the absence of the father or father figure are related to lower cognitive functioning in children. Young maternal age has been related to lower cognitive functioning in children (Belmont, Cohen, Dryfoos, Stein, & Zayac, 1981; Broman, 1981). Ethnicity as well as been studied in relation to children's cognitive functioning, with findings that minority children score below white children on measures of cognitive functioning (Broman, Nichols, & Kennedy, 1975; Deutsch & Brown, 1967; Schooler & Anderson, 1979).

Brown and Rosenbaum (1984), who conducted an extensive review of the literature, explain the plight of these children and their families:

Disadvantaged children suffer from inadequate health care, stressful home conditions including large family size, and disordered, undisciplined schools. Disadvantaged families are at-risk from domestic breakup, maternal depression, poor health (especially from stress-related disease), recurrent financial crises and disordered and uncontrollable life conditions. (pp. 131-132)

A considerable body of literature indicates that when children are aroused, distracted, and confused by stressful life events and conditions (e.g., noise, crowding, marital disruption, etc.), their intellectual/cognitive functioning in the form of IQ scores and school functioning in academics tends to be below average (e.g., Belle, 1982; Blom, Cheney, & Snoddy, 1986; Brown & Rosenbaum, 1984; McIntire, 1991; Prince et al., 1972; Werner & Smith, 1982). As Blom et al. (1986) have written

it is difficult to quantify the impact of stress on children's academic learning and school adjustment, but it is safe to say that for some children it is a major impediment to achievement and that most children occasionally are diverted by the effects of stress. (p. xi)

A number of researchers believe that the family is the appropriate unit of study in understanding the impact of stress on a child's cognitive functioning such as IQ or school achievement (e.g., Blom et al., 1986; Brown & Rosenbaum, 1984; Upshur, 1988). Brown and Rosenbaum (1984) believe "the key to the overall improvement of intellectual competence lies in dealing with family functioning as part of the general reduction of stressors in the child's environment" (p. 138). In low socioeconomic families, the parent's ability to cope well with the stress of child-rearing may be the most effective buffer against a child's life events stress impacting negatively on the child's cognitive coping (e.g., Rutter, 1981; Rutter, 1983; Sameroff & Seifer, 1983; Werner & Smith, 1982; Work, Cowen, Parker, & Wyman, 1990; Wyman, Cowen, Work, & Parker 1991). For example, according to Humphrey and Humphrey (1985)

there is an increasing amount of evidence that shows that children supervised by adults who themselves do not cope well with stress, will pass along to children this same inability to cope. In addition, it has been found

that when these same adults improve upon their ability to control stress, this skill is also passed along to children. (p. vii)

By serving as a positive or negative influence or mediator, the level of parenting stress partly determines the relationship between the stress the child is experiencing and the child's cognitive functioning. Many researchers see the child's response to stress as falling on a continuum ranging from vulnerability to resiliency (e.g., Brown & Rosenbaum, 1984; Humphrey & Humphrey, 1985; Garmezy, 1983; Johnson, 1986; Murphy & Moriarty, 1976; Rutter, 1983; Sameroff & Seifer, 1983; Werner & Smith, 1982). The attitudes, psychological characteristics, and behaviors of the parent in response to childrearing are the channels through which the child is enabled (resiliency) or debilitated (vulnerability) when dealing with life events stress which he/she encounters.

Stress and Child Cognitive Functioning

Brown and Rosenbaum (1984) have developed a theory and model to test the hypothesis that stress is related to cognitive and intellectual functioning in children. This occurs through a process of brain regression transmitted to the child through parental modeling of effective coping with stress. The part of the brain that controls emotion (limbic) is more primary than that which controls cognition (neocortex). When people live under stressful life conditions, they more often rely on emotionally-based coping than on cognitively-based coping. This follows an initial assessment which uses cognitive processes but which, under stress, moves increasingly to the control of the emotional system (or more primary limbic brain).

Under stress, verbal cognitive problem solving skills (linked to speech, language, and conceptual knowledge) may become depressed or may not develop fully because the individual is emphasizing emotional coping. Emotional coping (e.g., aggression, denial, withdrawal), while sometimes necessary and effective for daily living under stressful conditions, is not as conducive to success in the formal educational system as is cognitive coping based on the use of symbols (e.g., use of selective attention and ability to access memory, knowledge base, metamemory, and skill in manipulating language). It should be

noted that verbal cognitive functioning may be distinguished from nonverbal cognitive functioning. Verbal cognitive functioning includes speech and language use, and understanding of concepts linked to language. These abilities consist of perception, memory, and previous learning association. By contrast, nonverbal cognitive functioning includes such tasks as those related to gross and fine motor skills and spatial skills.

Brown and Rosenbaum (1984) further explained how stressors affect intelligence in children within the context of the family under stress:

Developmental insults affecting the growth and level of intelligence appear to be the result of three epidemiological vectors that translate stress into dysfunction. These are: (1) high stressor levels, especially those associated with poverty and illness, which decrease ability to deal with daily stressors and complex tasks; (2) inadequate family function, which increases the incidence of stressful events and vulnerability to stress and; (3) poor coping skills, which result in reduced self-management, social awareness, and cortical control over emotion. (p. 145)

Brown and Rosenbaum believed that the negative influence of stress on cognitive functioning develops early in life and is linked closely with the home environment. They begin their emphasis on schooling with early intervention programs and progress to follow-up studies of children in elementary and high school. Most of the studies in support of their hypothesis involve older children. A few studies are available with younger children examining relationships between stress, parenting, and child cognitive functioning but these studies are not as clearly designed to test the Brown and Rosenbaum hypothesis as those with older children.

Numerous researchers have shown children's cognitive functioning (both verbal and nonverbal) to be impaired under stress. Brown and Rosenbaum (1984) examined the relationship between specific stressful child life events and IQ in low-income elementary students and obtained an inverted U distribution between the number of stressful life events experienced by the students and their IQ performance. Higher peaks were found in children from low socioeconomic groups, suggesting higher emotional arousal. They also found that high school students who had been in early education preschool programs still

showed effects of stress on IQ in the form of lower cognitive functioning than students who had been under less stress.

Other researchers have found the number of stressful life events are correlated with maladjustment in school as demonstrated by acting out, being moody-withdrawn, having a learning problem, and by a combination of all these elements during an entire year in a sample of inner-city elementary children (Sandler & Block, 1979). In addition, in a longitudinal study including preschoolers experiencing normal daily stress, Murphy and Moriarty (1976) found that some of the children under stress reacted with disturbances in perceptual and cognitive functioning. They found that "children whose IQs varied were often sensitive and more aroused" (p. 344). The expressive speech of these preschool children had become impaired. This is a clear example of the relationship between stress and language.

Parenting Stress and Child Cognitive Functioning

The child's stress is not the only factor relevant when considering the relationship between stress and cognitive functioning in the child. Brown and Rosenbaum and others (e.g., Werner & Smith, 1982; Wyman, Cowen, Work, & Parker, 1990) have hypothesized that the relationship between the stress the child experiences and the child's cognitive functioning is mediated by the coping ability of his/her parents with regard to parenting (childrearing) stress. The parent's coping ability, in turn, buffers the child from an amount of and response to acute and chronic stress so great that the child's cognitive functioning (necessary for coping) is impaired. The degree to which parents can effectively model and help a child adjust and cope better with the child's life stress may be related to the parents' ability to manage their own stress in parenting (Humphrey & Humphrey, 1985; Murphy & Moriarty, 1976; Werner & Smith, 1982).

Parenting stress is composed of cognitive, affective, and behavioral components (Mash & Johnston, 1990). Parenting stress can be related to specific characteristics of the child, such as the presence of disorder or the temperament of the child. Parenting stress is

also linked to certain characteristics of the parent (Abidin, 1985, 1990). For example, Upshur (1988) stated that parents who suffer from health problems, poor self-concept, feelings of being out-of-control of their lives, or who live under an array of stressors "are not as likely to be able to provide optimal conditions for child development" (p. 135). Reciprocity operates, and both parent and child factors may substantially contribute to the stress in the parent-child relationship. In addition, there are substantial contextual sources of stress operating in determining the total amount of parenting stress (Abidin, 1985, 1990; Belsky, 1984).

Several studies have found parenting stress to be related to negative perceptions of child-rearing and negative parent-child interactions (e.g., Bugental, Blue, & Cruzcosa 1989; Bugental & Shennen, 1984; Hastings-Storer, 1991; Patterson, 1983). Hastings-Storer found that low-income mothers had more overall parenting stress than middle-class mothers. Those areas related to attachment were especially stress-ridden. High levels of parenting stress have been associated with higher levels of learning problems in elementary school children (Belle, 1982), decreased language ability and achievement in children (Murphy & Moriarty, 1976; Werner & Smith, 1982), and low child intellectual functioning (McIntire, 1991; Prince et al., 1972). For example, McIntire (1991) in a study of parenting stress and cognitive outcomes in early elementary school-age boys, found that parenting stress was significantly and negatively related to the IQ of the child. He concluded

it should also be noted that just as lower intelligence in children may influence stress levels in mothers, higher levels of chronic stress in mothers might have some impact on the cognitive development of children, as suggested by the results of the multiple regression on children's IQ scores. . . . Chronic parental stress is likely to have greater effects on child development, possibly even cognitive development. (p. 89)

Among low-income families, children with more attentive, nurturant, and intellectually stimulating parents have had larger intellectual gains (e.g., Prince et al., 1972; Werner & Smith, 1982; Wyman et al., 1991). Findings reported in a series of studies which addressed resilience in families of low-income inner-city elementary school children support these differences (Parker, Cowen, Work, & Wyman, 1990; Work, Cowen,

Parker, & Wyman, 1990; Wyman, Cowen, Work, & Parker, 1991). High quality parent-child relationships when the child was an infant and a toddler characterized by attachment and nurturance seemed to help children to be "stress resistant" to the negative life conditions associated with poverty. These children's school functioning during the elementary school years was less impaired and the children had developed personality characteristics such as an internal locus of control which seemed to help them cope.

Although researchers contend that the effects of stressful events begin early in a child's life and are related to the quality of the parent-child system, only a few studies are available that have explored the relationship between these types of stress and cognitive and intellectual functioning in preschool children. Prince, Kiely, Boros, and Engelsmann (1972) examined preschool children who were under severe stress, measured aspects of the parent-child relationship, and related both to child cognitive intellectual functioning. Although the study suffered from unreliable instrumentation, the results support Brown and Rosenbaum's theory that parental stress relates to child stress which in turn relates to the child's verbal cognitive functioning. Prince et al. (1972), whose study was an evaluation of Family Life Education Services in Canada, found

the mean WPPSI for the high income children to be 17 points above that of the lower income children; the mothers' stress symptoms are twice as high among the low-income groups and their attitudes are much more authoritarian. (p. 13) ...In the low-income sample there is some evidence that the highly distressed mother may be related to impaired cognitive abilities of her child; this is evident in the verbal IQ. (p. 26) [Further, with regard to authoritarianism] ...The relationships are stronger in the low-income sample and are to be found both in the verbal and performance aspects of IQ. (p. 31)

Murphy and Moriarty (1976) conducted further research on daily stress in middle-class preschoolers. They found that an accumulation of stress in the child's life brought changes in children's usual adaptation level and style of functioning. Depression, exhaustion, or illness in mothers who had earlier been supportive in child-rearing were "followed by drastic changes in the child's style and level of adaptation and even in IQ

level" (p. 187). They concluded that the stress these children were under was not severe, yet the children were impacted enough for measurable change to take place.

By the same token, families can be resilient to severe stress. Werner and Smith (1982), in a study assessing longitudinal child outcomes for Hawaiian children living in poverty, compared children who were able to cope with those who were not so able. The quality of the mother-child relationship when the child was a toddler was critical in relation to the child's ability to cope throughout life and strongly related to IQ, cognitive functioning, and academic performance in middle childhood and adolescence.

Not all low-income children will show low intellectual/cognitive functioning. Many families will be resilient to a greater degree than others. Unfortunately, more low-income children and their parents are susceptible to vulnerability as these families live under more stressful environmental conditions and suffer more negative life events than members of middle-class families do (Dohrenwend & Dohrenwend, 1974; Longfellow & Belle, 1984). Therefore, it is critically important to identify factors that are related to resilience in those children who cognitively cope well while under severe environmental and life events stress.

Because language is one of the most important cognitive skills a child needs to use to manage his environment and feelings, the relationship of stress to language and verbal cognitive functioning needs attention. One of the most powerful influences on language development is the quality of the mother-child relationship. Several early researchers have done extensive work on the relationship between verbal development and the home environment.

Early work by Bernstein (1961) on social class (mainly lower and middle strata) and linguistic development supports the theory that the SES status of the family influences verbal functioning in such a way as to accentuate emotional coping and minimize cognitive coping. This is along the lines of Brown and Rosenbaum's theory. Bernstein's theory revolves around the concept that "two distinct forms of language use [formal and public/restricted] arise because the organization of these two strata is such that different

emphases are placed on language potential" (p. 291). He suggested that middle class speech is a language in which "the formal possibilities of sentence organization are used to clarify meaning and make it explicit" (p. 291). The speech of lower class individuals is termed a public language where the speaker "operates within a speech mode in which individual selection and permutation are severely restricted" (p. 291). Bernstein proposed that in middle class families as compared to lower class families, "the early linguistic relationship between mother and child is essentially one which maximizes cognitive and affective differentiation, rather than affective inclusiveness and identity" (p. 294).

Early Childhood Programs, Stress, and Child Functioning

Once the child begins school, the home situation Bernstein outlined involving restricted language can be exacerbated. Bernstein (1961) posited that within a formal learning situation, the public or restricted code of communication is often not recognized by "authority figures." This leads to a situation in which

the attempt to substitute a different use of language and to change the order of communication creates critical problems for the lower working-class child, as it is an attempt to change his basic system of perception, fundamentally the very means by which he has been socialized. (pp. 304-305)

Stress in the home environment can thus be carried over to become stress in the school setting. Even though much work has been done to accept dialects and languages in an attempt to reduce stress associated with producing language unfamiliar to the student, Evard (1988) found, after an extensive review, that stress was reported as a debilitating side effect from early education programs. Further, the effect of life events on children has not been explored to the extent it has with adults. This is especially true with preschool children, many of whom participate in early childhood compensatory education programs. These programs are considered particularly important for low-income children.

Blom, Cheney, and Snoddy (1986) reported that "children are subject to stress-inducing environmental events and situations just as adults are. Parents and educators have been slow in recognizing this, at least to the extent required to develop the knowledge and

skills necessary for effective intervention" (p. ix). Teachers often find it difficult to deal with the stress which comes from the home into the school setting and may be making the school situation more stressful as a result. In a survey study for example, elementary school teachers were found to be aware that children in their classrooms experience acute and chronic stress situations at home and in school (Zucker & Snoddy, 1980-cited in Blom et al., 1986). These teachers reported that they listened to the students and felt the students saw them as a potential source of support. However, the teachers stated that they are not provided by the educational system with curriculum, materials, facts, or skills which could be used to provide beneficial interventions. Yet teachers are in an excellent position to work with children to reduce stress since they are often very significant adults in the child's life; are with the child for extended periods of time; and can observe, interact with, and impact on the child.

The following conclusions can be drawn:

1. A number of empirical studies support the conclusion that life events and conditions relate to child stress and parenting stress, which in turn are related to the child's verbal cognitive performance. The majority of these studies have been conducted with school age students. Little is known about the relationships between child stress, parenting stress, and the child's verbal cognitive functioning during the preschool years, especially in low-income population children who attend early childhood compensatory education programs.

2. Little research has been done on the relationships between child stress, parenting stress, and the child's verbal cognitive functioning at the time of the child's entry into early childhood compensatory education programs for low-income families. These programs recognize that language acquisition is one of the most significant developmental tasks during early childhood and that verbal cognitive functioning is valuable in problem solving. Information about the stress present in the child's life, both from events which have occurred with him/her and stress present in the parent-child relationship, could be

added to background knowledge about the family. If a significant relationship is found between stress and the child's cognitive functioning it might raise questions about how large a role stress management could play in early childhood compensatory education and in the family setting.

3. Attention to demographic variables is a part of almost every study in the area of stress and functioning. In almost all cases, middle class parents and children cope more effectively with stress with regard to the child's verbal cognitive functioning than do lower class parents and children. The demographic variables which along with income categorize social class (e.g., educational level, employment status/occupation, and family composition, e.g., number of parents in the home, maternal age, and ethnicity) are seen both as relating to a higher or lower incidence of stressful life events (acute stress) and as determining stress levels from the environment (chronic stress) for these families. Many of these findings come from studies conducted with school age children. How these demographics are related to resiliency or vulnerability in preschoolers' verbal cognitive functioning (especially for low income children) is less clear.

4. The studies that have focused on preschoolers' stress, parenting stress, and the child's verbal cognitive functioning suffer from such measurement problems as a lack of attention to life events specific to preschool children, unreliability of instrumentation for stress, no formal measurement of acute life events stress, parenting stress measures which do not include characteristics of the child, and a lack of extreme poverty children as subjects. These methodological problems necessarily limit generalizability, but not all studies have all these problems. Overall, the results of the studies support the existence of these relationships and thus continued research along these lines (with replication mindful of the methodological problems noted) is warranted.

Purpose of the Study

Numerous K-12 studies have explored relationships between child stress, parenting stress, and child verbal cognitive functioning once children have entered elementary school.

However, it is well established that a significant amount of a child's language development occurs between the time the child begins combining words and age five (Eisenson, 1977). Further, a child's language development is strongly influenced by the quality of the parent-child relationship (Bernstein, 1961; Hess & Shipman, 1965; Wulbert, Inglis, Kriegsmann, & Mills, 1975). The argument that low-income individuals experience more undesirable life events (negative stressors) has a long history of confirmation in the literature (Dohrenwend & Dohrenwend, 1974; Pearlin, Liebermann, Menaghan, & Mullin, 1981; Pearlin & Schooler, 1978). It has also been noted that the preschool years are the most stressful for parents (Abidin, 1985). Finally, preschool children's reactions to life events are influenced by their particular stage of cognitive and emotional development (e.g., preoperational). They are especially susceptible to impaired functioning when these life events are related to their primary caretakers. For most child, the primary caretaker is the mother (Barton & Zeanah, 1990).

Of the studies found which did examine child stress in children before they entered elementary school, only two studies focused on preschool children and their parents under substantial stress which assessed the preschool years currently (Bee, Barnard, Eyres, Gray, Hammond, Spietz, Snyder, & Clark, 1982 and Prince et al., 1972). Of these two which studied preschoolers currently, the first study suffered most severely from unreliability of instrumentation for stress, and the second study suffered from a weak (global and general) measure of stress as well as from the exclusion of poverty level families. Other studies lacked certain criteria with regard to the variables of child stress, parenting stress, and verbal cognitive functioning in low-income preschool children. Perhaps the most common of these limitations concerned collecting stress data retrospectively to the preschool years. As a result, the child's cognitive functioning as a preschooler is unknown. The link between stress in the preschool years and cognitive functioning is extrapolated downward from the cognitive functioning of the child during the

school years when the study was being conducted to his/her cognitive functioning as a preschooler.

Despite the limitations of individual studies, the literature as a whole suggests that the relationship between child stress, parenting stress, and the child's verbal cognitive functioning is active during the preschool years in low-income groups. Several stressful life events measures for children are now available. In the last few years increased attention has been paid to developing a more consensual definition of parenting stress. For example, a 1990 issue of *The Journal of Clinical Child Psychology* ran a special issue on "parenting stress". In addition, more reliable and valid measures of parenting stress have been developed and normed. Children in such compensatory early education programs as Head Start have had their verbal cognitive performance assessed as a pretest/posttest in the programs, making this type of data more accessible.

The purpose of this study will be to examine the relationships between (a) child stress (stressful child life events), (b) parenting stress (the main caretaker's ability to cope with stress in the parent-child relationship), and (c) the child's verbal cognitive functioning (speech and language and concept functioning) in late preschool age children in an early childhood compensatory education Head Start program for low-income families.

This study extended the research done with low-income elementary and high school students to preschool age students to test Brown and Rosenbaum's theory that environmental stress (i.e., acute and chronic) and parenting stress are related to verbal cognitive competence in the preschool age group and in the low socioeconomic group, with the parent-child relationship mediating the impact of stress on the child's verbal cognitive functioning. This study was designed to reduce limitations found in previous research. To summarize, these limitations are

1. A lack of attention to life events specific to preschool children;
2. Unreliability of instrumentation for stress;
3. No formal assessment of acute life events stress;

4. Parenting stress measures which do not assess child characteristics;
5. Retrospective collection of data during the preschool years, also making it impossible to have information on cognitive functioning at that developmental period; and
6. No inclusion of extreme low-income families.

Besides examining the relationships between child stress, parenting stress, and the child's verbal cognitive functioning, the analysis included demographic variables which have been shown in past studies to most strongly and consistently influence stress and cognitive functioning in low-income families: namely, parental education, employment status, marital status, age, and ethnicity. At times, these variables have also been seen as sources of stress.

Significance of the Study

There is considerable support in the literature for conducting a study such as the one proposed here. Johnson (1986) wrote that most attention had been paid to the life events of adolescents. In addition, mediator variables (e.g., the parent-child relationship; the temperament of the child) have been given inadequate attention. Johnson wrote:

Especially neglected in this regard are younger children, below the age of 10 or so. Not only has less attention been given to the assessment of life changes in younger children, but there have been fewer studies that have focused on the correlates of life events and the role of variables that may moderate the impact of life changes in this age group. (p. 128)

Webster-Stratton (1990) described the situation in the following way:

The task for future research in this area is to continue to conceptualize the complex and dynamic relationships between stressors and the family interaction system, as well as to identify those factors that can serve to increase or decrease a maladaptive outcome for the parents and the child. For the ultimate challenge is to recognize those families most at risk, those most vulnerable to disruption by life stressors, and to help them develop resources and coping skills that will minimize the disruption. (p. 310)

How children respond is likely to be tied to the relationship they have with their family. Compas (1987) contended that "the relation between various social contexts or ecologies and the coping behavior of children . . . needs to be examined in greater detail. Foremost among these is the role of the family" (p. 401).

Measuring cognitive functioning in general as an indicator of coping with stress has considerable support in the literature. For example, Werner and Smith (1982) with respect to cognitively based coping argued that "we need to identify more systematically the positive effect of these variables in contributing to 'resiliency' and 'invulnerability'" (p.160). Evard stated that the element of stress in relationship to cognitive functioning "does warrant the need for further investigation" (p. 41). Murphy and Moriarty wrote that "zones of disintegrative responses to stress (cognitive, as in IQ changes, motor, as in the loss of control, including speech problems) call for study" (p. 350).

As previously discussed, language is identified as critical for successful school functioning by governmentally funded early childhood education programs. Projects such as Head Start place a heavy focus on improving language and conceptual functioning in preschoolers before they begin the formal educational process. Some researchers in Head Start recognize the role stress plays, reflected in the writing of Slaughter (1980):

In short, the very context, attitudes, and behaviors attributed to Head Start children and their poverty-stricken families fifteen years ago, have become increasingly widespread in the nation as a whole, particularly its urban areas. The social problems Head Start was created to partially resolve now, in varying degrees, afflict the nation. Head Start is the nation's only existing laboratory with a potential for dealing with these problems if, and only if, it can reveal what it has learned, and is learning, about how embattled children and families cope with environmental stress, and how the families of these children, despite this stress, can often serve as incubators for positive early cognitive and social development. The future of Head Start, I believe, lies in how well it can inform and serve the nation in this regard. (p. 15)

This study may help preschool educators understand several critical issues.

1. The role of the parent in the child's language and conceptual development, and the susceptibility of language and conceptual development to stress. Language is known to be critical for learning. Eisenson (1977) wrote that the ability of parents to use the parent-child relationship to convey to children how talking can help them structure their world and gain information sets the foundation for a child's willingness to use language, or the development of anxiety about communication. The parent also plays a crucial role in

establishing concepts and conceptual thinking in children by the number and quality of experiences provided to the child to learn concepts.

When children have experienced numerous stressful life events, their verbal cognitive functioning is often below average. It is well established that low-income groups experience more undesirable life events. This study will extend findings from studies examining child stress and cognitive functioning in elementary school children downward to the preschool period of childhood, with a focus on low-income families.

2. The role of the parent-child relationship as a mediator of child stress on verbal cognitive functioning. Most child stress researchers have found the parent-child relationship to be a powerful mediator of life stress for the child (especially the young child with attachment needs). Children who have parents less stressed by such variables as social isolation and lack of marital support exhibit higher verbal cognitive functioning than children of parents experiencing large amounts of stress. This follows the thinking that when the parent is handling the different elements of being a person and a parent, the child may benefit from a lessened number of stressful life events present and the positive modeling provided by a coping parent. This study will hopefully shed light on these mediated relationships of preschool age low-income children and their primary caretaker, the mother.

3. The importance of early intervention with regard to both parenting and child stress and the possible role of the school, especially the early education teacher, in this intervention. Early childhood compensatory education programs such as Head Start have always had a strong parental involvement component. This has most often been directed at helping the parent teach the child in the hope of improving speech, language, and conceptual knowledge in the child; these are major areas of concern for low-income children. Such programs have not often attempted to relieve the stress of the parent and/or child to increase verbal cognitive functioning in the areas of speech, language, and conceptual knowledge in the child through the parent-child relationship. The early

childhood teacher can play a pivotal role in alleviating stress reactions in both the child and the parent. This study may be used to provide teachers with information about these issues to help them be more aware of the stress the child brings to school. Equally, if not more important, programs must work with the family to alleviate some of this stress from arising in the first place (Blom et al., 1984) due to its high cost to the child, family, and society (Abidin, 1990).

Limitations of the Study

According to a number of researchers (e.g., Blom et al., 1986; Brown & Rosenbaum, 1984), the relationship between stress and functioning begins early in the child's life. One limitation, however, of a study which focuses on preschool children, was related to the difficulty of studying stress in young children. As Chandler (1984) pointed out, there were two main problems. First, a very young child cannot say that an event has been stressful. Therefore, the parent self-reported stress events for the child. Also, there was less likelihood of showing a relationship between stress and an outcome variable because life events are necessarily cumulative. Older children would therefore have a higher probability of having experienced more life events than preschool children.

A second limitation was with the instrument chosen to measure child life events stress, the Coddington Life Events Record. This instrument was normed in the early 1970s. The author commented that gathering data every few years on the extent of social readjustment required by children would give a measure of changes occurring in our society. This has not been done with this scale. However, this was the only instrument available which was specifically designed to measure life events experienced by preschool children. Reliability information was lacking on the preschool age group. To address this, a reliability study was conducted and is discussed in Chapter III.

A third limitation of the study involved the measurement of language development in general as an outcome measure. According to Seymour and Wyatt (1992), speech and language in children this age group have not been completely mastered and are in a state of

flux. There was considerable variability in the developmental rate among individual youngsters during the language acquisition period. However, developmental milestones were much more stable. Using milestones allowed researchers a predictable alternative in the form of classifying children by language level rather than rate.

A final limitation involved the use of a local sample (one county) for the study. For instance, these mothers and children were likely to be on the very low end of the income scale as they resided in the fourth poorest county in the United States. As poverty is a strong criteria of risk, perhaps the results from this sample will be meaningful to this issue.

Definition of Terms

Verbal cognitive functioning. Verbal cognitive functioning referred to performance on language and conceptual knowledge tasks. The Developmental Indicators for the Assessment of Learning-Revised (DIAL-R) is a widely used screening measure for preschool children, particularly those in government sponsored early childhood programs (e.g., Head Start). This instrument assessed the abilities of perception, memory, previous learning association, kinesthetic awareness and coordination, and language in young children.

Two subscales, Concepts and Language, had 8 items each, a total of 16 items. Each item within Concepts and Language further represented a subscale. All Language subscales were related to memory and previous learning association. Seven of the eight Concepts subscales were related to language, memory, and previous learning association. The only subscale not related to language in the Concepts scale was sorting. This subscale was related to perception, memory, and previous learning association. This instrument was designed to measure competencies that nursery-school, kindergarten, and first-grade teachers indicated were needed for success in the regular classroom. The operational definition of verbal cognitive functioning for this study was the score obtained by a child on the DIAL-R Language and Concepts developed by Mardell-Czudnowski and Goldenberg (1990).

Child life events stress. Child life events stress was defined as an identifiable external life event which occurred in relation to a single event, at times of crisis proportion (Blom et al., 1986). Child life events stress measures have been developed to parallel the work on life events stress of adults which found strong relationships between life events and functioning. The difference in applying this procedure to children was that the child life events measures were completed by parents when young children are involved.

Child life events instruments quantify the number of life events, the amount of change required on the part of the child in response to the event (known as social readjustment), or a group of events qualitatively different from one another. The Coddington Life Event Record was the most widely known and used life events measure for children. For the purpose of this study, child life events stress was operationally defined as the the number of life events factors representing the areas of Loss, Entrance, Family Troubles, Positive, Physical Harm, and Primary Environment Change occurring at any time in a child's life as measured by the Life Event Record--Preschool (LER-P) developed by Coddington (1972a). The factor analysis from which the areas of life events were taken was conducted by Sandler and Ramsey (1980).

Parenting stress. Parenting stress was comprised of affective, cognitive, and behavioral components of the parent that related to the demands of child-rearing in an interactive and reciprocal manner with the child (Mash & Johnston, 1990). The parent-child relationship can be thought of as a mediator of stress for the child (Johnson, 1986; Mash & Johnston, 1990; Webster-Stratton, 1990). When a great deal of stress was present in the relationship, the level of dysfunction in the individual(s) was greater.

As measured by the Parenting Stress Index (PSI) developed by Abidin (1985, 1990), parenting stress was the stress present in the parenting system defined as a function of certain child characteristics, parent characteristics, and situational variables directly related to the role of being a parent. High stress was consistently associated with dysfunctional parenting (Abidin, 1985). The PSI has been used in more than one hundred

studies and is the most visible measure of parenting stress in the literature. Operationally defined for this study, parenting stress was the thirteen factor scores obtained on the Parenting Stress Index developed by Abidin (1985, 1990).

Demographic variables. Five current demographic variables were examined in this study. Maternal educational level was determined by the number of years schooling the mother had completed. Employment status was determined by whether the mother was employed or unemployed. Marital status was measured as married or unmarried. Maternal age was measured continuously. Ethnicity was measured as minority or white.

Research Questions

The following questions were posed in examining these relationships:

1. Is there a relationship between child verbal cognitive functioning and child life events stress, parent-child relationship stress, maternal education level, maternal marital status, maternal employment status, maternal ethnicity, and maternal age?
2. Is there a relationship between child verbal cognitive functioning, child life events stress and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age?
3. Is there a relationship between child verbal cognitive functioning and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress and parent-child relationship stress?
4. Is there a relationship between child life events stress and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age?
5. Is there a relationship between child life events stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for parent-child relationship stress?

6. Is there a relationship between parent-child relationship stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress?

Hypotheses

The following hypotheses were tested to answer the research questions posed:

1. There will be a significant relationship between child verbal cognitive functioning, child life events stress, parent-child relationship stress, maternal education level, marital status, employment status, ethnicity, and age.
2. There will be a significant relationship between child verbal cognitive functioning, child life events stress, and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age.
3. There will be a significant relationship between child verbal cognitive functioning and the demographic maternal variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress and parent-child relationship stress.
4. There will be a significant relationship between child life events stress and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age.
5. There will be a significant relationship between child life events stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for parent-child relationship stress.
6. There will be a significant relationship between parent-child relationship stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress.

CHAPTER 2 REVIEW OF THE LITERATURE

This literature review will be presented in six parts: (a) general background literature on stress in childhood and adulthood; (b) direct literature on the relationships between child life events stress, parenting stress, and child cognitive functioning as it is the most directly related to the proposed study; (c) the literature on the relationship of child life events stress and child cognitive functioning; (d) the literature on child life events stress and parenting stress looking at the influence of these two variables on one another; (e) studies on the relationship between parenting stress and child cognitive functioning; and (f) relationships between five demographic variables related to stress in children and parents and cognitive outcomes in children: namely, maternal educational level, marital status, employment status, maternal age, and ethnicity.

Historical Background on Stress

Stress is a term originally used to describe breakdowns in human functioning. Early stress research focused on physiological stress (e.g., Cannon, 1929; Selye, 1978). Selye's definition of stress is "the nonspecific response of the body to any demand" (p. 1). Cannon's work focused on the fight or flight response to stress. Recently, a shift has taken place emphasizing psychological stress arising from the environment. For example, according to Chandler (1985) "stress may be defined as a state of emotional tension arising from the failure of the environment to meet the individual's needs, and/or from events and situations that are seen as threatening" (p. 6). This view has made stress more generalizable across outcomes, allowing it to take more than just a physical form.

Blom, Cheney, and Snoddy (1986) defined these events and situations in the following way: as stressors take the form of an environmental event, "in such cases the

term 'acute' is often associated with them" or for situations or conditions, "the term 'chronic' is often used to characterize this type of stress" (p. 26). This distinction between events and conditions clarified the context in which the events took place. For example, research has shown environmental socioeconomic factors are related to the number of negative life events which occur in an individual's life and the ability to cope effectively with them when they do arise (Dohrenwend & Dohrenwend, 1974; Pearlin & Schooler, 1978).

Of acute life events, children share some events with adults but experience others unique to childhood. The area of life events has become the focus of much child stress research. Additionally, there is the stress of the normal physical, cognitive, and emotional developmental milestones of childhood (e.g., Chandler, 1984; Garmezy, 1983). Different events heavily tax availability of the child's resources for dealing with both acute life events stress and chronic environmental stress as a function of the child's current developmental level. Barton and Zeanah (1990) describe the events most stressful to young children:

During the period between 1 and 4 years, stressors that threaten the primary attachment relationship are likely to be experienced as particularly difficult. . . . Control over the immediate environment is critical at many developmental stages, but is particularly important to preschoolers, who have struggled only recently to gain control over their behavior and who continue to struggle toward a wider range of competencies. The threat posed by many events experienced as stressful by the preschool child centers around a loss of control, including the inability of trusted adults to control environmental events. (p. 196)

In adulthood, the role of parent becomes a major part of life for most adults, bringing with it its own unique set of stressors. Many researchers believed having young children was a significant source of stress in itself (e.g., Cappell & Mays, 1973; Gil & Noble, 1967; Longfellow, Zelkowitz, & Saunders, 1982; Mash & Johnston, 1990; Webster-Stratton, 1990). For example, Gil and Noble (1967) found in a large statistical compilation, that in 59% of the cases of child abuse, 'mounting stress on perpetrator due to life's circumstances' was indicated.

Women may be at increased risk for stress in parenting. On this subject Longfellow et al. (1982) suggested that

the stress factor is compounded by the fact that the mother of young children is herself usually young, often poor, and in a growing percentage of cases, shouldering responsibility alone. (p. 163)

Recent Census data support this claim. In 1986, 51.4% of female-headed households were below the poverty line. In 1985, 61.3% of all mother-only families were awarded child support compared to 40% of poor women with children (Congress of the United States, 1988). Combining the need of the preschooler for an adult who can control the environment for him/her and the environment that many mothers are being asked to control, is likely to increase both the amount of stress present and adverse responses to this stress in both of them.

Researchers in the field of stress have several suggestions and guidelines for studying psychological stress. One guideline is to determine if an event or a situation can be considered a stressor. To qualify as such, three conditions must be met, according to Blom, Cheney, and Snoddy (1986). The event or situation must be external, it must be clearly identifiable, and it must yield a "psychological disequilibrium . . . sufficient to result in a behavioral reaction (response)" (p. 17). Once the stressor(s) is/are identified, stress theorists (e.g., Compas, 1987; Lazarus, 1977) stated that it was essential to find principles for predicting the stress reaction from the person-environment relationship. The relationships which may be present between the child, the mothering one, the childrearing environment, and the stress response manifesting in the child's verbal cognitive functioning is the subject of this literature review.

Child Verbal Cognitive Functioning, Child Life Events Stress, and Parenting Stress

While most research on child cognitive functioning, child stress, and parenting stress has focused on elementary age children and up, a few studies have concentrated on or included children who are preschool age. In this section of the literature review, seven studies will be reviewed. These studies included young children, stress the child and

mother were under, and child verbal cognitive functioning and/or school functioning. Of the seven, six assessed life events as stressors and one assessed stress symptoms. Three of the studies were conducted with preschool age children and two others assessed the preschool years retrospectively. Two studies in the section focused exclusively on the school years, but are included because they illustrate the relationships between the variables well. Four of the studies were longitudinal, ranging from four to twenty years.

Prince, Kiely, Boros, and Engelmann (1972) studied child IQ and cognitive functioning, stress in children, and maternal stress. Subjects were 240 dyads each of which consisted of a mother and her 4-year-old child and which were randomly selected to represent equal numbers of high-and low-income groups. As part of an evaluation of preschool programs in Canada, these mother-child dyads were randomly assigned to groups. Treatment children attended traditional nursery school programs. A nontreatment group did not attend school and received no treatment. The middle-class children attended programs already in place and accessible to them in the community. Low-income children did not have adequate programs available. As part of the study these children attended programs designed in the manner of Head Start in the United States. Mothers were also assigned to treatment or control matching their children's participation or nonparticipation. The instruments were: the Wechsler Preschool and Primary Scale of Intelligence (WPPSI), Goodenough Draw-A-Person-Test (used to measure concept development, not as a projective technique), Child Stress Symptom Checklist, Langner Psycho-physiological Stress Scale for mothers, and Hereford Attitude Survey for authoritarian versus permissive attitudes for mothers.

Pretest results showed that on both the WPPSI (including almost all its subtests) and the Draw-a-person test, the scores were significantly poorer for low-income children. The authors found that a trend was present "consistent with the idea that verbal abilities are relatively more developed in higher income families" (p. 13). With regard to the measures of stress, significant differences were found between the low- and high-income groups for

both the mothers and the children. The group differences in the mothers' reported stress symptoms, however, were larger. The authors reported their finding as a "common" relationship; that is, the lower the income (or class level) the higher the symptoms. They wrote that "this relationship has been well-documented and is one of the most consistent findings using self-report stress symptom checklist techniques (Phillips, 1966; Roberts et al., 1966; Starr, 1950)" (p. 24). No significant relationships were found between the reported stress symptoms in the high-income group of children and IQ; however, several of the correlations were significant in the low-income children. The authors stated that "this might suggest that symptoms so intense as to be worthy of note to the low-income mothers are also severe enough to interfere with the low-income child's intellectual functioning" (p. 28).

When looking at the relationship between parenting stress and child cognitive functioning, the authors found that

in the low-income sample there is some evidence that the highly distressed mother may be related to impaired cognitive abilities of her child; this is evident in the verbal IQ and the Draw-a-person test. Such a relationship is not apparent in the high-income sample. (p. 26)

Also included in the Prince et al. (1972) study were measures of authoritarian versus permissive childrearing beliefs and attitudes shown to be connected with many child outcomes. The relationship between the mother's symptoms of stress and her authoritarian attitudes toward child-rearing was stronger in the low-income group. For the relationship between authoritarian attitudes and child cognitive functioning, again the correlations were higher in the low-income group than in the high-income group. In addition, both verbal and performance aspects of IQ were related to authoritarianism in the low-income group; whereas in the high-income sample only the verbal performance was related to authoritarianism. In the Prince et al. study, the child's verbal cognitive functioning was more highly related to his/her mothers' stress symptoms and authoritarianism than to his/her nonverbal cognitive functioning.

In the course of the study, the question of reliability of instrumentation arose with both of the parent measures. The authors looked more closely at the Langer instrument which was designed to measure stress using a recent review of the measure. While procedures during administration were not problematic or troublesome, 10 of the 22 items on the instrument itself were about past history, with 3 other items phrased to reflect character traits. These questions were stable and unlikely to register change. Upon further investigation by the authors, the Hereford scale for measuring authoritarianism versus permissiveness, was revealed to have low test-retest reliability.

Another weakness was with the stress measures. The score was heavily influenced by social class and this was not taken into account. The authors found a stronger relationship between the frequency of mothers' symptoms and frequency of children's symptoms in the high-income group. They stated that based on knowledge of low-income children, these children would be expected to suffer from more symptoms related to stress than high-income children. As an explanation, the authors theorized that low-income mothers had so many other problems that they were not as "aware of or concerned by these kinds of symptoms in their children" (p. 28) and these symptoms would have to be much more severe than for the high-income mothers in order to become "noteworthy". While this may be so, it is clear that this was not an anticipated finding. The measures were not independent with respect to social class as they were thought to be.

A final weakness of this study was in not measuring the mother's perceptions of the child's characteristics. These characteristics, such as temperament and how acceptable the child was to the parent were very important in getting an accurate assessment of how much stress the mother experienced as she dealt with her child in the context of childrearing.

One of the clearest patterns that emerged in the Prince et al. study concerned the outcome measure. Overall, in both social classes children clearly exhibited higher susceptibility to impaired verbal cognitive functioning than nonverbal cognitive functioning

under stress. This was consistent with the findings of other researchers (e.g., Murphy & Moriarty, 1976; Werner & Smith, 1982).

Resiliency and vulnerability were investigated in a 20 year longitudinal study conducted by Werner and Smith (1982) on children in Hawaii. From previous research, it became clear that many of the variables on which well-functioning children in general differed from poorly functioning children were difficult to change (e.g., poverty, low educational level of parents, low self-efficacy/external locus of control). The researchers turned their attention to the "resilient" child to provide understanding of coping in high risk groups. The resilient child was the child who performed well under adverse environmental conditions.

All live births (N=698) during the year 1955 in Kauai, Hawaii served as subjects. The data collection points occurred during the children's toddler years and at age 10 in reference to the years ages 2 through 10. In addition, data was collected in late adolescence, after which the study ended. Since the study was longitudinal and because there was no data collection during the preschool years, information about other periods of childhood has been included here to illustrate trends. Measures included: (age 2) an assessment of pre/perinatal complications, home visits, temperament, mother's interaction with infant and toddler, stressful life events, Cattell Infant Intelligence Scale and the Vineland Social Maturity Scale; (age 10) assessment of the early family environment, grades, previous intelligence and achievement tests, information from current teacher on achievement and intellectual problems observed in the classroom, and the results of two group tests: the Bender Gestalt and the Primary Mental Abilities Test (sampling reasoning, verbal, numerical, spatial, and perceptual-motor skills).

Before presenting results, Werner and Smith (1982) began by saying that:

Although most of the children and youth with serious and persistent learning and behavior problems in this community were poor, it needs to be kept in perspective that poverty alone was not a sufficient condition for the development of maladjustment. (p. 32)

The specific stressful life events found at age two indicated that among the females, those events that differentiated the resilient children from those who subsequently exhibited difficulties were: parental mental health problems, parental conflict, illnesses, and accidents. With regard to the mother-child interaction, mothers of high-risk resilient girls were observed to interact in a more positive manner with them than did mothers of girls considered high-risk who later developed problems. Resilient toddlers scored significantly higher on both the Cattell and the Vineland.

During the 2- to 10-year period, the most often cited stressful life events among these families included: mother's employment outside of the household on a long-term basis, childhood illnesses or accidents requiring medical treatment, chronic illnesses, handicaps, or death of a sibling, parental illnesses, the departure of a sibling from the household, the absence of the father, and chronic family discord during the early and middle childhood years. Many of these events represented threats to relationships with close attachment figures. With regard to the quality of family life, the authors reported

most of the children who developed serious ...problems received little emotional support in early and middle childhood. They had poorer relationships with their parents, fewer opportunities for satisfactory identification; and were exposed to more inconsistent methods of discipline than the resilient children. (p. 69)

Significantly higher scores on the Primary Mental Abilities Test (PMA) were found for both male and female resilient children than for those children who were manifesting serious problems. These differences were greatest on the Verbal Comprehension (V) factor and on the Reasoning (R) factor, a measure of problem-solving ability, of the PMA.

This study demonstrated many of the aspects of the parent-child relationship that relate to life events and cognitive functioning in low-income children. As it is longitudinal, it has advantages for generalizability that the cross-sectional design of the Prince et al. (1972) study did not. The problem of reliability of instrumentation was not as pronounced. However, like the Prince et al. study there were certain weaknesses with the operational definition of parenting stress. Stress for the parents was a measure of family life events

more than the stress present in the parent-child relationship. During physical and psychological exams, the parent-child relationship was observed and assessed. The researchers observed the children in their homes on a limited basis. In addition, the variables of parenting stress and child stress were not clearly separated, instead the same events applied to both the adults and the children. Most researchers in child stress felt that the life events that occurred with a child were qualitatively different than those for an adult. However, there is some overlap which helps offset this criticism.

The major weakness of the Werner and Smith study was that while the research did encompass children from birth through adolescence, there is the lack of a separate data collection point for the preschool years. The years between ages 3 and 5 were considered a separate and distinct period of childhood from infancy/toddlerhood, childhood, and adolescence, particularly with respect to cognitive functioning (e.g., Piaget). There was no way to know the age of the child at the time of occurrence of events and no cognitive outcomes were available for the children during the preschool years using this design. Also, parents had to go back through seven years to answer questions in this study. Therefore, the information gathered, particularly about the home environment (more than life events), could be strongly susceptible to response bias in favor of the present circumstances.

Bee, Barnard, Eyres, Gray, Hammond, Spietz, Snyder, and Clark (1982) studied prediction of IQ and language skill with attention to parental input in a four year longitudinal study of 193 mother-infant dyads. Socioeconomically, the group as a whole had an education above high school, mothers were in their twenties, were mostly married, mostly white, and with average family incomes. Instruments used were the Brazeltton Neonatal Behavioral Assessment Scale, Bayley Scales of Infant Development, Denver Developmental Screening Test, McCarthy Scales of Children's Abilities, Sequenced Inventory of Communication Development, Fluharty Speech and Language Screening Test, Preschool Behavior Questionnaire, Stanford-Binet, maternal education, Schedule of Recent

Events, Neonatal Perception Inventory, and the Home Observation For Measurement of the Environment (HOME) Inventory.

The results indicated that from the "family ecology cluster", (i.e., stress, social support, developmental expectations, and mother's education) measured in infancy, additional information about stress and social support improved the prediction of child IQ and language functioning over that which could be made from just knowing the number of years of education the mother had. The authors concluded, "thus, it is not 'social class' alone that is of importance, but rather the perceived supportive or stressful quality of the family interaction" (p. 1148).

However, developmental expectations, social support, and life change revealed correlations which were consistently stronger in the low-education sample than the high-education group. The explanation given was that a different interactional dynamic may have been operating which was dependent on the education level of the family. The authors suggested that mothers with less education may respond differently to high life change levels or levels of social support which are low. "These mothers may be less able to 'buffer' the child against vicissitudes in their own personal relationships" (p. 1152). Bee et al. noted that several researchers have recently proposed that adults vary in a predictable fashion in their ability to cope with high personal stress levels. In particular, better personal support systems and more education in parents would help them "weather the inevitable episodes of high life change (Dohrenwend & Dohrenwend, 1978; McFarland, Norman, Streiner, Roy, & Scott, 1980)" (p. 1152). With respect to their own study, Bee et al. (1982) reported that

our results are at least consistent with the hypothesis that one of the specific features of low-education families that increases the risk of later poor intellectual or linguistic performance for the infant is a lesser ability of the parents to adapt to the changing demands for the child, and to create or use helpful support systems for themselves. (p. 1152)

One limitation of the study was that the measure of parenting stress was somewhat weak, because it was actually a measure of the quality of the home environment (HOME) on the one hand, and recent stressful life events were not separate for parent and child on

the other. However, the parent-child interaction was assessed with this method. The HOME was developed for use with Head Start, so the results may generalize more effectively to populations of low-income preschoolers. In this study, however, the sample was most representative of white middle-class families.

A retrospective data collection design was used by Work, Cowen, Parker, and Wyman (1990) on inner-city low-income elementary school children aged 10 to 12 and their families in the Rochester Child Resilience Project (RCRP). Parents were interviewed about the child's stressful life events in infancy and the preschool years and the parent-child relationship at those times as well as in the current school years. Parents completed the Stressful Life Events Checklist for children (SLE-C) and several ratings of the child's adjustment. Teachers both from the current year and the year before independently rated the child's adjustment, comparing them with same-sex classmates on a global rating of their standing in class (separately for overall class adjustment and for academic performance) using the Teacher-Child Rating Scale with the following factors: Acting-Out, Shy-Anxious, and Learning Problems (e.g., poor concentration, limited attention).

The criterion used to define Stress Affected (SA) and Stress Resistant (SR) groups were that, for both groups, the parent must have checked at least four stressful life events on the SLE-C. SRs must have placed in the top third on at least two of the three adjustment ratings, i.e., by parent, former teacher, and current teacher; and no lower than the middle third on the other adjustment rating. To be classified as SA, children must have placed in the bottom third on at least two of the three adjustment ratings, and no higher than the middle third on the other.

Identified were 40 SRs and 37 SAs. A low stress (LS) comparison group consisting of 45 children who had experienced 0 or 1 Severe Life Events in childhood (SLE-C) was matched on sex and grade and included in the study. Analyses revealed that on the Teacher-Child Rating Scale; the SRs scored as best adjusted, SAs as least well adjusted, with LSs in between. This supports a popular theory that when a child

experiences no stress or very little she/he does not get a chance to learn and practice coping skills (e. g., Brown & Rosenbaum, 1984).

Identified SR and SA children completed 11 measures consisting of child self-rated adjustment, empathy, self-esteem, perceived competence, locus of control, and perceived support. Interviews with both the children and parents were conducted (Wyman, Cowen, Work, & Parker, 1990). Parents were interviewed on core clusters of variables examined within a developmental framework to reflect possible developmental shifts in protective factors occurring over time. These were: temperament, caregiver efficacy, father involvement, separation, childcare support, and parent-child relationship. Parents who were effective in handling these areas were seen as coping better with the stresses of child-rearing than parents who were not coping well.

SR children had significantly higher self-reported current perceived competence scores than SAs on all subscales except Athletic Competence. Cognitive strategies showed that SAs endorsed more ineffective problem-solving solutions than SRs. SRs had a stronger endorsement of more effective solutions overall. The trend was for SRs to have more positive and fewer negative coping strategies than SAs. SRs scored as significantly better adjusted than SAs on CRS Rules, Social Skills, and School Interest, and directionally higher on locus of control. SRs had significantly higher realistic control scores than SAs. On affective factors, the SRs had higher empathy scores than SAs, but did not differ on anxiety or depression. Perceived support failed to reach significance.

The family milieu variables showed that in infancy, SRs had easier temperaments, more father involvement, fewer separations, and more childcare support. For the preschool period, SRs again were rated as having had easier temperaments than SAs. In addition, there was a more positive parent-child relationship between SRs and their parents than in families with SA children. For the school-age period, the primary caregivers of SRs had greater perceived parenting efficacy and more positive parent-child relationships than the primary caregivers of SAs.

The parents of SRs had aspirations for more fulfilling educational, employment, and interpersonal futures for their children. With regard to caregiver attributes, parents of SR compared to SA children had greater perceived resources in the form of more available support, greater life satisfaction, and a positive self-image. Interviewers who worked with the families rated SR compared to SA children as also having parents with more positive attributes, positive parent-child relationships, and support available for the family.

Socioeconomic status was also analyzed by looking at family income level (FIL) and parent educational level (PEL). The parent occupation level was not included because 40% of the families had mothers as head-of-household and of these, 50% were not regularly employed. While SAs and SRs were similar in FIL (average monthly income \$600-\$900), these groups were significantly different on Parent Educational Level. The parents of Stress Resistant children had completed more years of education than the parents of Stress Affected children.

On the topic of resilience, Work et al. (1990) summarized:

many children in this school come from families that have experienced multiple, chronic life-stressors including poverty, drug and alcohol problems, disrupted marriages, serious emotional problems, and histories of abuse or neglect. The undercurrent of stress is pervasive. Yet within it are resilient children who adapt, indeed adapt well, to difficult life circumstances. (p. 3)

The authors went on to say that evidence was increasingly supportive of the view that a high quality early caregiver-child relationship provided a sound foundation for a child's later adjustment, citing such researchers as Ainsworth (1989), Bowlby (1982), and Sroufe (1983). The findings of Work et al. (1990) suggested that this relationship was

facilitated by the combination of certain child qualities and an effective caregiver with adequate support. This configuration may provide a set of conditions that help the child to learn, and internalize, attributes, e.g., empathy, perceived self-worth, a sense of efficacy, that favor effective coping with adversity.

The authors stated that while the results were "informative and heuristic" there were also important limitations to the study. The main one was that the interview areas assessed information retrospectively for the preschool years e.g., temperament and family milieu,

and could be affected by response bias influenced by current functioning. In this respect the study had the same flaw as the Werner and Smith study.

A second lesser weakness of the study was its illustration of the quality of the parent-child relationship and the child's school functioning rather than only cognitive functioning. School functioning can include many social skills. Not separating this out makes it difficult to assess a child's cognitive functioning.

Following are two studies which used elementary age children as subjects. However, they have good comparability with the other studies in this chapter as they both illustrate social class concerns, child stressful life events, the mediating role of the parent-child system, and competence in children's learning.

Masten, Garnezy, Tellegen, Pellegrini, Larkin, and Larsen (1988) studied children at risk for psychopathology, the effects of stressful life events on the functional competence of children, and protective/competence factors, influencing stress resistance in children. In this study "stress resistance" was defined as competent manifestations in children despite experiencing stressful events. Dispositional attributes, characteristics of the family milieu, individual developmental characteristics, and parental attributes were hypothesized to relate to resiliency and coping in the children.

Subjects were 205 third- through sixth-grade children and their families drawn from two urban community samples involved in Project Competence. The measures were the Life Events Questionnaire (Coddington), interviews for a global subjective rating of stress level of the family, socioeconomic status, grades, standardized test scores, Peabody Individual Achievement Test (PIAT), vocabulary and block design of the Wechsler Intelligence Scale for Children (WISC), and interviews assessing child competence and milieu and child attributes.

In one study with this group, Garnezy, Masten, and Tellegen (1984) found that in PIAT scores, IQ played a large role which the authors acknowledged was "predictable". In addition, SES and stress accounted for small but significant additional amounts of variance

in the PIAT. An interaction effect was found for IQ and stress to PIAT performance. The relationship appears to be conditional and is discussed in terms of models:

... The interaction provides an example of the immunity-versus-vulnerability model. It also indicates a compensatory effect. As for the latter, PIAT performance, regardless of stress level, covaries with IQ. As for the interaction, IQ also appears to function to some degree as a protective factor. High IQ children maintain good PIAT performance at both low and high levels of stress, whereas for low-IQ children, PIAT performance drops off as a function of higher stress. This interaction is also significant for the other achievement measure based on school records. (p. 107)

In a second study with the same group that included family milieu and stress (Masten, Garmezy, Tellegen, Pellegrini, Larkin, & Larsen, 1988), the PIAT was dropped. Child competence was defined as scores on an instrument developed by Garmezy to measure engagement or disruptiveness in school functioning. Multiple regression was used to analyze the data. Gender was entered first since it was fixed; IQ was next because of its well established link with child competence and because it was considered less changeable than environment; then family characteristics, such as quality of parenting, were entered over SES because they were psychologically more informative; and finally the life events were entered after all these personal and environmental variables so as to incorporate their longer-term role in competence before considering the effects of recent life events.

The results indicated that parenting quality covaried highly with IQ, but even after IQ was partialled out, parenting quality and child competence were significantly related. Likewise, controlling for SES, parenting quality still showed a significant relationship with the engaged criterion. This condition was true for the disruptive criterion among the girls. After removing IQ and parenting quality first, SES differences for all criterion measures were nonsignificant.

When the first four variables (gender, IQ, parenting quality, and SES) were partialled out, life events was a significant predictor for the disruptive criterion. An interaction for parenting quality by life events was observed for girls only. The increase of disruptiveness in girls when low quality of parenting was present along with high life

events stress indicated that the increase was an accelerating function. Masten et al. (1988) found that:

For the engaged-disengaged criterion of school competence, the level of life events was inversely related to competence for children high on parenting quality, in keeping with the vulnerability model. For the criterion disruptive, life events related substantially to the criterion only for children low on the attributes of IQ and SES, in keeping with a bipolar protective-vs-vulnerability model. (757-758)

IQ was the most "salient" predictor of academic achievement, with no interactions present. The authors did not treat IQ as an outcome measure at any time and it is unfortunate that the PIAT as an outcome measure was dropped. However, the authors did replace this with the engaged/disruptive measure of competence as related to school functioning, making it more similar to the Work et al. study with respect to type of outcome measure. This study was helpful in demonstrating that a relationship existed between child stress, the quality of parenting, and child functioning. As mentioned at the outset, however, the children in this study were elementary school age as opposed to preschool age and this limited the generalizability of the results to a younger developmental period.

Longfellow and Belle (1984) studied stressful environments and their impact on children in 160 mother-elementary school age child dyads from low-income families. An interview was conducted with mothers on: demographics; sources of stress across different areas of life; availability of support; feelings of stress and strain; current mental health status; and any physical, emotional, and learning problems their children might have (termed child adjustment problems). Children also completed an interview which asked about their relationship with their parents, among other things.

The frequency of adjustment problems had a significant relationship with several stressors; health problems, emotional problems, and social network problems. Those mothers whose children had more adjustment problems had less education and were not as likely to be employed. Little variation was present from one stressor to the next in magnitude. Because so many of the stressors (disadvantaged backgrounds, lower educational attainment, and less likely to be employed) associated with child adjustment

were also related to maternal depression/mental health, the authors investigated "the possibility that maternal mental health mediated the impact of the other life stressors on children" (p. 68).

Path analysis showed that 14% of the variance was explained by the two sources of stress (situational environmental stress and maternal stress related to physical and emotional health) and each made a unique contribution to the variance in child outcome adjustment.

The authors concluded

thus, the data support a model in which both situational stressors and maternal well-being have a direct effect on children's adjustment. In addition, the two sources of stress were highly correlated with each other; the path analysis further suggests that some of the impact of situational stressors on children is mediated by the mother's well-being. (p. 68-69)

A significant interaction effect was found for gender, with stressors adversely affecting boys more than girls, regardless of number. Both boys and girls experienced the same stress from the situation and their mother's well being but were differentially impacted by this stress. In a study by Pianta and Egeland (1990), however, it was girls who were more adversely impacted than boys. Gender of the child was a variable which was inconsistent in showing differences. Children in general appeared to be influenced by stress.

A limitation of this research was that the adjustment problems were not reported separately to investigate the relationships between stress and parenting as opposed to just learning problems. In addition, life events and conditions explained less of the variance in outcomes for children than for adults. The authors explained

in part this may reflect the fact that the study was originally designed to assess the impact of stressors on maternal mental health and therefore the interview was geared towards measuring those events and conditions believed to be most stressful to mothers. Most likely, though, is the fact that school age children are buffered from the impact of life stressors in a variety of ways. Most important is the physical and emotional status of their mothers, but other factors, not included in our analysis are also significant such as the supportiveness of the relationship between the parent and child. (p. 76)

The last study examining relationships among the three variables was a longitudinal study conducted by Murphy and Moriarty (1976). These researchers studied 32 randomly

selected normal preschoolers under daily stress and its relationship to coping and vulnerability in functioning through variables explaining this relationship (e.g., temperament, parent-child relationship). The sample, small to begin with, included no minority families, few families on the lower or upper ends of the SES range, and the children had IQs just slightly above average (116). This study however, had much to offer as research on "normal" children (e.g. Anna Freud) exhibiting disruption of verbal cognitive functioning under stressful life events. The research methodology was observational and done as a type of case study on each of the 32 children.

Observation, psychological, psychiatric, and pediatric exams were collected during preschool, latency (prepuberty), puberty, and late adolescence. Full scale intellectual testing (WISC) was done on the children and their home situations were assessed. The researchers kept track of life events by word of mouth (as they happened) instead of using a formal instrument. While the main focus was on the children's lives, the relationship between the child and mother was a large part of the study. With respect to parenting stress, a handful of parents engaged in interviews when the children were in latency. These interviews were about the "parent's ways of coping with stress".

A major construct studied in the children was "the capacity to maintain internal integration". During the preschool stage, deterioration or inhibition of functioning in integrative, cognitive, motor, or affective areas signalled vulnerable areas. Vulnerability was defined in the study as "susceptibility to stress". In summarizing the influence of stress throughout developmental periods, the authors wrote that:

...infancy vulnerability is negatively related to a wide range of coping patterns at prepuberty, and preschool vulnerability is negatively related to still more prepuberty items; evidently, sequelae of traumata of the first six years greatly influences the later capacity to deal with stress, while the earliest patterning foreshadows the level of perceptual clarity and cognitive functions. (p. 149)

A system to measure coping using hundreds of observational categories was factor analyzed and yielded two factors. The second factor, named Coping II, was of particular interest because of the many cognitive processes involved. It was defined as "maintenance

of internal integration--that is, capacity to manage one's relation to the environment so as to maintain integrated functioning (free from marked tenseness, unmanageable anxiety, loss of motor coordination, deterioration of speech, disorganization of thought processes, and so on)" (p. 116). Coping II was related to child functioning items such as "achieving clear structure has priority over expressing affect," competence, task involvement, low impulsiveness, and sense of self-worth, among others.

Those children who were judged as more vulnerable from infancy to preschool age had experienced illness which "diminished the child's adequacy" but more important, "whose mothers' difficulties (depression or other emotional disturbance, extreme fatigue, or anxious over-restrictiveness) contributed to the child's vulnerability. Less resourceful coping capacities were seen in the children who showed greater vulnerability" (p. 131). For example, in studying the mother-infant interaction and coping at puberty, the authors found the amount of attention given by mothers to young children had a curvilinear relation with prepuberty phase functioning. A "balanced amount of attention is related to orientation, perceptual clarity, internalization of standards, trust, and internal integration" (p. 144).

With respect to cognitive outcomes, the children's IQ variability was related to coping, but an even more sensitive measure of vulnerability to stress was found in language, especially in speech. The authors reported that they unexpectedly found 75 percent of these normal children exhibited deviations severe enough to interfere with communication with others in their prepuberty years. Further, they found that in many cases "vulnerability" in speech and vocalization went back in time to the infancy years and continued to manifest all the way through to prepuberty.

The authors noted that vulnerability in the speech-language areas might persist in relation to temperament (biological) bases as the children rated most vulnerable in speech and language were this way during infancy and preschool. "On the other hand, it was equally clear that changing developmental pressures and conflicts, as well as family stresses, particularly from relationships with mother, contributed to continuing

vulnerability in speech" (p. 238). Some of these stresses were: long hospitalization in infancy, repeated illnesses, marital discord or instability, inconsistent maternal handling, temporary loss of mother, or maternal care style mismatched with babies needs.

Finally, for coping in children, the capacity to seek help was a characteristic of resilience found to be related to life events stress. Murphy and Moriarty report that those children who did not exhibit a strong drive for recovery and mastery had experienced "prolonged or multiple stress in addition to the mother's early tension; family stress and long drawn-out periods of suffering left emotional scars and decreased resilience" (p. 291). These results were especially powerful in light of the small sample size, the fact that the stimulation in the homes was reported overall as very favorable with moderate to high family interaction, and that these families had many socioeconomic resources.

Summary

The studies reviewed in this section illustrate the role played by parent-child system stress in the relationship between the stressful life events of a child and his/her cognitive functioning. The following can be said in summarizing this section of the literature review:

- (a) There is a relationship between the child's stressful life events and his/her cognitive functioning. These correlations are in the range of -.02 to -.33.
- (b) Parenting stress appears to be a mediating variable which influences the relationship between child life events stress and child verbal cognitive functioning. When there is high parenting stress, there is often high child stress and lowered child verbal cognitive functioning. The reverse has also been found. When parenting stress is low, there is often lower child stress and higher child verbal cognitive functioning. The correlation between parenting stress and child stress is .11 to .56 and that between parenting stress and child cognitive functioning is -.04 to -.3.
- (c) Analyses suggest these relationships are present in the preschool age child. However, these relationships are not as clearly confirmed as in those studies with school age children. Young children for the most part have not been well researched with respect

to their life events stress, the stress present in the parent-child relationship, and their verbal cognitive functioning. The main reason given for the lack of study on preschool children was that children of this age were more difficult to study than school age children and adolescents. This was because fewer life events had happened to younger children and young children themselves could not complete the measures, making them more difficult to sample. However, many researchers felt the preschool years were critical in understanding stress and functioning as most issues of childhood were ruled to some extent by the child's developmental period. Therefore many stress researchers assessed stress retrospectively from the school years to the preschool years. Unfortunately, data collected in this way was strongly susceptible to response bias. In the studies conducted with both preschoolers and school age children, there were many types of stress measures used. In many cases there was a lack of distinction between the parenting stress and the child's life events stress measures.

(d) The studies with preschoolers used well-established indicators of cognitive functioning (e.g., verbal IQ tests and speech and language performance). Several of the studies were conducted with both low and high or exclusively low socioeconomic status groups of school age children following the literature which indicates that low income individuals experience more negative life events and lower cognitive functioning than individuals in higher socioeconomic groups, but that resilience was present in low income families.

A model described by Cowen and Work (1988) seems useful for summarizing the major points of the research on resilience:

This largely developmental/transactional model, similar to one proposed by Lorion, Tolan, & Wahler (1987) suggests that resilient outcomes are favored by interplays between qualities of the child and the family context in which s/he is reared. It stresses that the availability of adaptive models who provide care, warmth, support and understanding, helps the young child to acquire resources and strategies needed to cope effectively with major life stress. Whereas, initially, the model's support is largely protective, later, as the child's awareness grows, model(s) provide concrete examples of effective coping strategies in difficult circumstances, that the child comes to adopt in dealing with future stressors. (p. 5)

The next sections will be focused on the variables of interest in pairs. While in each instance a piece of the whole model as outlined above will necessarily be missing, these studies added to the understanding of the proposed study. In particular the lack of attention to preschool children was prevalent.

Child Life Events Stress and Child Cognitive Functioning

This section of the literature review was concerned with studies which measured the relationship between child stress and child cognitive functioning. Three studies will be reviewed. One focused on intellectual functioning and two on school functioning. All three were conducted with young elementary age children since no studies on these two variables were found which used preschool children.

Using data collected in the 1960's, Brown and Rosenbaum (1984) studied the effects of stress on IQ in 4,154 middle and lower class seven-year-old children drawn from the NINCDS Collaborative Perinatal Project. The measure of stress was an index score composed of the number of medical/psychological problems found in a child's life. These included: mother's marital status, employment, family configuration, history of illness, death, and divorce in the family, measures of autonomic function, achievement measures, and physician-identified disorders. IQ was measured by the WISC. Scores on the WISC versus stress level of the child produced an inverted U relationship. For low socioeconomic children, the curves were the same shape, but "peaked at lower stress levels suggesting higher arousal" (p. 136). In this study, SES interacted significantly with stressful life events.

Sandler and Block (1979) studied kindergarten through third grade children who had been identified by their teachers as having manifested adjustment problems in the classroom. As subjects, 99 children in four inner-city elementary schools were chosen. A control group of 44 children was randomly selected within each school and matched the maladaptive group for grade, gender, and ethnic membership. The sample was mostly ethnic minority, poor, and from single-mother homes.

The children were rated by their teachers on dimensions of maladaptive behavior using the AML, with scores for: A (acting out), M (moody-withdrawn), L (learning problem), and a sum AML. Parents completed the Louisville Behavior Check List composed of factors such as sensitivity, anti- or prosocial, and academic disability. The stressful life events of the children were measured by a life event schedule with items combined from the Coddington (1972) Life Event Record and a scale created by Gersten, Langer, Eisenberg, & Simcha-Fagan (1977).

The results indicated that those children identified by their teachers as having adjustment problems in the classroom had more stressful life events occur in the previous year than controls. Further, the group considered to be maladaptive was significantly higher on stress measures of Ambivalent, Undesirable, Total Events, and Weighted Sum Scores than the controls.

In a subsample of the school maladjusted group, life stress events were significantly related to parent ratings of child maladjustment and Total Stress Events, Weighted Sum Scores, Undesirable Events, and the Undesirable-Desirable score for the maladapted children. The Total Events score tended to have the highest correlations with the dimensions of maladjustment. The Undesirable Events score was the most consistent, being significantly correlated with all nine dimensions of maladjustment. The authors drew the conclusion that "the results of the present study can be interpreted as supporting the view that it is the desirability rather than the change per se inherent in an event that mainly determines its stress value" (p. 437).

A limitation of this study is that the measure of cognitive functioning is mixed with behavior and mood of the child. These influence the social/emotional aspect of school functioning. It is difficult to see the relationship of stress and cognitive functioning with these variables included. A second limitation is having input about the child from the parents which at first glance might be considered a strength of this study. However, the implicit limitation of all the studies in this section (no assessment of parenting stress) may

have more impact in this study. Not assessing characteristics of the parent failed to give insight into parental perceptions which might have influenced responses about children, as was seen in the Prince et al. (1972) study.

In 1985, a study was conducted by Sterling, Cowen, Weissberg, Lotyczewskil, and Boike to examine the recent stressful life events of first through fourth grade children and their school adjustment. Out of 974 children, 211 were identified by their teachers as having had one or more of 11 Stressful Life Events (SLEs) (cf. below) occur during the present school year. A group of 211 children designated by teachers as having experienced no stressful life events during the current year served as a comparison group. This group was closely matched to the SLE group for location (urban, suburban), school, grade, repeat in grade, age, gender, and ethnic background.

Teachers completed all measures. The 11 stressful life events were taken from two child life-events inventories, the Coddington Life Events Record and the Gersten scale. The events studied were death of a parent, sibling, or close relative; serious illness of a parent, sibling, or close relative; lengthy illness and/or hospitalization of child; school transfer; parents separated or divorced; parent remarried; parent lost job; family experiencing severe economic difficulties; change in home residence; new child born into family; new adult or child moved into the home. The Classroom Adjustment Rating Scale (CARS) was used with factors consisting of acting-out, shy-anxious, and learning difficulty; and the Health Resources Inventory (HRI) which measured the following elements: good student, copes well with failure and other school pressures.

There were two main findings of the study. First was that those children who were reported by their teachers as being more maladjusted and less competent than peers matched on demographics, experienced one or more recent SLEs. On 8 of the 10 measures (with the exception of the CARS Acting-out and the HRI Rules), significant differences were found, with more severe problems and more incompetencies rated for the group with SLE.

Second, those children who experienced multiple recent stressful events were rated as more maladjusted and less competent than their peers who had experienced fewer of these events. Three subgroups were formed based on number of SLEs experienced by the child in the current school year, based on one such event, two such events, and three or more such events. Significantly fewer competencies and more serious problems were reported for the three or more SLEs group than for the other two groups. The authors further commented that the problem of stress in children was of concern. Within their large, representative sample, 22% of these young children experienced in the preceding 8 months, one or more of the SLEs rated.

A major limitation of this study was that it did not address income level. Brown and Rosenbaum (1984) and Chandler, Million, and Shermis (1985) found the presence of stressful life events to be higher the lower the SES status. In all fairness, many of the studies showing these relationships were published at the same time as this article being discussed. A second limitation was that while it may be assumed that the teacher would know whether the 11 life events measured had occurred, there was a possibility that events occurred in the child's life which the teacher was unaware of or misinformed of. Finally, similar to the study by Sandler and Block, the measure of competence was school competence (including social skills) rather than cognitive functioning.

Summary. These three studies together show that intellectual and school performance are related to the number of stressful life events experienced by early school age children. In summarizing this section, the following conclusions have been developed:

- (a) Cognitive functioning often decreases when children experience severe and frequent stressors. This was reflected in IQ scores and school adjustment in the form of academic motivation and performance problems, ineffective learning skills, and academic disability;
- (b) A curvilinear relationship was present in the case of IQ and stress. The relationship was linear with school achievement and stress. The difference may be that IQ was more clearly or closely related to cognitive functioning than school functioning which could

include social skills, thus offsetting or masking the downward trend in cognitive functioning; (c) Little research has been done on the relationship between stressful life events unique to preschoolers and child cognitive functioning during this developmental period.

Child Life Events Stress and Parenting Stress

In this section of the literature review, two studies examining the relationship between child life events and parenting stress will be presented. Both these studies were conducted with young elementary school age children. A third study examined parenting stress in detail in mothers of Head Start children as it fit in with the findings of the first two studies and more fully developed some of their points. Webster-Stratton (1990) wrote in a review article that one of the factors "shown to influence parental perceptions and behaviors" (p. 302) was negative life events. Mash & Johnston (1990) indicated that "in particular, . . . adverse life circumstances (e.g., life stressors) have been shown to have a detrimental impact on parenting and to be associated with increased parent-child interactive stress" (p. 318).

A central question was the relationship between the child's stressful life events and his/her parent's functioning in the parent-child relationship. This was investigated by Jensen, Bloedau, Degroot, Ussery, and Davis (1990) in studying the referral of children to a psychiatric clinic. Subjects were 134 six through twelve-year-old children referred to a military psychiatry clinic and 134 control children. The Coddington Life Events Record was used to measure life stress in the children and parents completed the Hopkins' Symptom Checklist for psychopathology in themselves.

Regression analysis showed that the life stress contributed from 2.9% to 7.1% of the variance in children's symptoms when parent symptomology was in the model. "When parental symptoms were forced out of the model in further multiple regression, stress explained as much as 11% of the variance in children's symptoms. This suggests that parents react to the life events stress purported to affect their children" (p. 57).

In a second study by Jensen, Richters, Ussery, Bloedau, and Davis (1991) on this same sample, findings were that in children referred to the clinic, higher levels of events confounded with their own maladjustment were found than for the control children. The authors wrote that "more interesting, however, is the fact that, compared with the control children, clinic children had also experienced higher levels of events confounded with their parent(s) functioning (termed parent-marker events) as well as higher levels of normative child life events" (p. 305).

The level of parent-marker events was significantly associated with the level of normative events in both the clinic and control children. The authors tested for the possibility that differences in normative events between the clinic and control groups might "be attributable to parent functioning as indexed by the parent-marker events" (p. 305). Results supported this by showing that the normative event differences were no longer significant when the parent-marker events were controlled.

Parental psychopathology therefore was a key parenting stress indicator (Abidin, 1985, 1990). Hastings-Storer's (1991) work on 85 low-income Head Start mothers gave insight into parent psychopathology, along with the influenced perceptions of the child's temperament found to influence the parent-child relationship stress level (Abidin; 1985, 1990) and coping for the child himself (Rutter, 1981; Compas, 1987). The Parenting Stress Index was used as the measure of parenting stress. Three groups with different stress levels (high, normal, and low) were formed, using cutoff scores recommended by the author of the instrument.

Overall, with respect to the Child Domain Stress in the Adaptability subscale, focus (or study) group data showed that only a minimally positive relationship was present between the parent and child for a significant group of the mothers in the study. An explanation was that mothers might have a hard time relating to the child's point of view and world experience (e.g., in needing routine), decreasing the sensitivity of the mother to the needs of the child. The author quoted Abidin on parent-child attachment: "When the

Adaptability/Plasticity scale is elevated along with the Child Reinforces Parent and Parent Attachment, there exists a strong indication that a minimally positive relationship exists between parent and child" (p. 59). The Child Reinforces Parent subscale scores showed high stress levels with over half of the experimental group scoring in the High stress category. The absence of reinforcement from the child could threaten the parent-child relationship. Possible reasons for a high score here were: the child might have been depressed, the parent might have been misinterpreting the child, the parent was depressed or not supported, or the parent expected too much from the child. Abidin stated that when the parent did not receive reinforcement from the child, the parent-child bond was threatened. The Mood score was also high in these children. High scores were commonly found with children who had dysfunctional affective expression and extreme scores indicated impairment in maternal attachment to the child.

When studying the Parent Domain Stress scores, a large percentage of mothers fell in the high stress group on Attachment as well. Hastings-Storer wrote that this was disturbing due to the many connections parental attachment had with child functioning of a cognitive, social, and emotional nature.

Attachment problems were a strong theme in this sample. A significant number of mothers also had elevated scores in Acceptability. Abidin writes this means, "that the child is not as attractive, intelligent, or pleasant as the parent expected or hoped. Poor attachment and/or rejection may consciously or unconsciously be issues in the relationship between the parent and the child" (p. 60). Hastings-Storer commented that none of the children scored in the potential problem category range on the DIAL-R and that the child not being as intelligent as the parent had hoped was not a valid explanation for high scores in Acceptability.

The DIAL-R was designed to tap severe problems such as those which might warrant special education. Within the range operating in this sample, analysis for differences on the DIAL-R among children whose mothers varied on stress levels was not

carried out. To be a point or two above the cutoff for "Potential Problems" on the DIAL-R or at the top of the range for "OK" represented a wide range of cognitive functioning. In addition, the DIAL-R had a domain for motor. If the total score were used, a high Motor score could mask a low Language or Concepts score (the other two domains).

Social Isolation was another Parent Domain subscale where the focus group had high scores. Hastings-Storer quotes McLoyd (1990) as saying psychological distress in parents in relation to isolation "increases the tendency of parents to be punitive, erratic, unilateral, and generally nonsupportive of their children" (p. 330). The third subdomain in which the subjects were significantly different from the norm group was on Relationship with Spouse. Here dissatisfaction with the support given by the children's father was reported in the study groups. While many fathers sent material help, the mothers reported wanting active support in rearing the child. Hastings-Storer felt that program services should encourage father-child involvement rather than zeroing in on marriage counseling.

One drawback of using the Hastings-Storer study to explore further differences in parental psychopathology found in relation to child stress studied by Jensen et al. was the difference in the two groups of subjects. All of the mothers in Hastings-Storer's research project were low-income African American, whereas the subjects from Jensen et al.'s study were more evenly distributed across socioeconomic and ethnic lines. On the other hand, since psychopathology is more prevalent among low-income individuals, the fact that the Hastings-Storer sample was low-income as opposed to middle or high helped offset this limitation.

Summary. The following remarks can be made with respect to this section on child life events stress and parenting stress: (a) A clear relationship has been found between the child's stressful life events and aspects of parenting stress such as parental psychopathology in elementary school age children; (b) Parents were both impacted by the life events their children experienced and the parents influenced the occurrence of these events in the first place in elementary school age children; (c) Research on parenting stress

with respect to child and parent characteristics revealed a great deal of stress present in the parent-child relationship between low-income mothers and their preschool children.

Attachment between the mother and child was a major area of stress for mothers and their young children. In the literature on child stress, attachment issues were considered the most stressful for preschool children (Barton & Zeanah, 1990); (d) The work on parental psychopathology as a contributing factor to child life events stress has focused on elementary school age children. Little research has been done on preschool populations with respect to the interplay between parenting stress and child life events stress.

Parenting Stress and Child Cognitive Functioning

There are a few recent studies which have focused on the mediating variable of parenting stress with regard to the child's cognitive functioning. In this section are two studies. The first measured parenting stress in the parent-child system and its relationship with child cognitive functioning (particularly verbal) in early elementary school age children. The other study in this section used large data bases of life events in low-income mothers when their children were preschoolers and school age.

Much of the stress the mother felt came from her relationships with those people in her life who were important to her, such as her child and significant others. This in turn influenced the child. Trad and Greenblatt (1990) stated, "the status of a child's attachment to parents and the milieu or origin are crucial factors in stress resistance and vulnerability" (p. 35). Similarly, Barton and Zeanah wrote, "important in mediating the effects of stress on the young child is the nature of the child's tie to primary caregivers" (p. 211).

One approach to studying parenting stress (and the one taken in the proposed study) was to look at the stress present in the parent-child relationship. Relationships were a part of parenting stress; so too were mothers' feelings about parenting, as well as the contribution of the child with respect to temperament and attachment. McIntire (1991) conducted a study of parenting stress and child cognitive outcomes with middle and lower class subjects. This study utilized Jay Belsky's (1984) model of parent, child, and

situational determinants and the influence they have on parenting. Belsky's work suggested that the parent's personal psychological resources were the most critical in the protection of the relationship between the parent and child from stress. Psychopathology in the parent placed children at risk for poor developmental outcomes while parents who were healthy were able to withstand enormous adversity and could assist children in overcoming behavioral or developmental handicaps.

The mean age for this sample of boys in McIntire's study was 8 years, 9 months, and ranged from 7 to 13 years. One parent group consisted of 42 single mothers, a second group of 52 married mothers whose husbands did not respond or refused to participate in the study, and a third group of 69 married mothers and their husbands who agreed to be in the study. Measures used were Conner's Teachers Rating Scale (CTRS), Peabody Picture Vocabulary Test-Revised (PPVT-R), Wide Range Achievement Test-Revised (WRAT), Parenting Stress Index (PSI), Parental Locus of Control Scale (PLOC), Knowledge of Behavioral Principles as Applied to Children (KBPC), Parenting Alliance Scale (PAS), and the demographic variables socioeconomic status, education, and family income.

The results may be presented in terms of stepwise multiple regression. The child's IQ was predicted by Maternal Knowledge of Behavioral Principles and Child Domain Stress. The child's Reading level was predicted by Child Domain Stress and Maternal Knowledge of Behavioral Principles. The Spelling level was predicted by Child Domain Stress and Maternal Knowledge of Behavioral Principles. Finally, the Teacher's Perception of the Child was predicted by Maternal Perception of the Child and Parent's Affective Response.

In addressing the question of predictors of maternal stress, McIntire followed Belsky's (1984) hypothesis that the order of predicting psychological factors would reveal that parent psychological factors would have the most power, contextual factors would be secondary, and child characteristics would have the least amount of power for prediction of parenting stress. The results of the regression analyses generally supported this order, but

in several cases the child characteristics were stronger predictors than the contextual factors. Parenting Stress Index (PSI) Total Score was predicted primarily by Maternal Locus of Control, followed by Maternal Perceptions of the Child, and Income; Child Domain Stress on the PSI was predicted by Maternal Perception of the Child, Maternal Locus of Control, and Child's IQ; and Parent Domain Stress on the PSI was predicted by Maternal Locus of Control, Maternal Perception of the Child, and Family Income.

Separate analyses on the single and couples groups found parental support added significantly to prediction equations for total and contextual sources of stress. This was in keeping with the overall model that marital status was a critical factor in the amount of stress present in the parent-child relationship and in child outcomes. To summarize the relationship between parental stress and child outcomes, McIntire (1991) writes:

All measures of stress are negatively, and significantly, related to the child's IQ, suggesting that parents of intelligent children experience less stress in parenting. (p. 89) The Teacher's Perception of the Child's adjustment was positively related to each stress measure...,indicating that children who are seen by their teachers as being deviant or poorly adjusted in the classroom in the direction of exhibiting hyperactivity, aggression, or defiance, have parents who are experiencing elevated levels of stress in coping with the child. (p. 90)

As mentioned at the onset, if demographic variables are a part of the studies with any of the variables (child verbal cognitive functioning, child stress, and or parenting stress) they will be reported when that study is reviewed. McIntire found with regard to demographics that the majority of the mothers in the study were high school graduates. Couples group mothers had obtained more education than mothers in the single mothers group. Percentages showed that 17% of single mothers were not high-school graduates compared with 8% of the mothers in the mothers-only group, and 6% of the mothers in the couples group. Fathers had significantly more education than mothers. Significant group effects for income were found, with the single mothers making less money than either of the other groups. In addition, couples group mothers held significantly more prestigious occupations than did single mothers. There were no group effects for number of children in the home nor age of the child. Education of the mother did not distinguish between

groups of mothers. One reason may have been a restriction of range operating with this variable as the majority of mothers were high school graduates. Other researchers (e.g., Hastings-Storer, 1990; Conger et al., 1984) found that mother's education was very strong in predicting parenting stress.

A second approach to studying parenting stress was to look at the number of life events the parent was experiencing. This gave the added benefit of knowing some of the events which happened with the children, but a drawback was that little was seen with respect to the processes that regulate stress in the parent-child relationship. In defense, however, the quality of the home environment was assessed in the studies to be reviewed and found to be important. Pianta and colleagues (Pianta & Egeland, 1990; Pianta, Egeland, & Sroufe, 1990) studied cumulative maternal life events stress on young children's functioning (birth through second grade) in the Mother-Child Interaction Project. Due to their disadvantaged economic status, these mothers were seen to be "susceptible to caretaking problems". Further risk factors included: low educational level, lack of marital support, generally unstable living conditions, and exposure to a variety of environmental stressors. The majority of the sample was white and most of the pregnancies unplanned.

The measure of maternal stress was an interview asking if a particular event or condition had occurred since the previous assessment and if it was still going on, along with assessment of the extent to which the family functioning was impacted. These items mostly tapped stressful experiences in the mothers' interpersonal relationships, as discovered by factor analysis, so the subscale formed from summing these items was named Personal Stress. Items with loadings of greater than range .30 were included in the factor. The factor accounted for the greatest percentage of variance in each of the solutions (between 35% and 50%). These scores were gathered approximately every year and a half. Pianta and Egeland's conclusion was that stress in economically disadvantaged mothers having to do with interpersonal relationships was "a particularly salient type of stress

This factor was a significantly better predictor of children's adjustment in first grade than was the life event total score obtained from the same scales" (p. 330).

Pianta, Egeland, & Sroufe (1990) studied competence in the children of these same mothers by looking at intelligence (Weschler Preschool and Primary Scale of Intelligence), language ability (Zimmermann Preschool Language Scale), and problem-solving (barrier-box situation) in children. Competence in children was determined by the Child Behavior Checklist for Teachers and Teacher's Ratings of Cognitive Competence. When looking at mothers who were highly stressed, competent boys were distinguished from their peers who were incompetent by several factors. Competent boys compared to less competent boys had higher intelligence, language ability, showed more positive affect and more creativity in problem solving. In the problem solving situation for the less competent boys, Pianta, Egeland, & Sroufe observed that the situation was "basically a negative one for the less competent boys" (p. 226). This group avoided their mothers, was less persistent and enthusiastic, showed less affection for their mothers, and had more negative affect. The home environments of competent boys differed from less competent boys in the "extent to which the mothers provided a structured, responsive home environment despite high stress" (p. 226). Differences on ratings reflecting positive mother-child interaction were noted with respect to a lack of respect for the child's "autonomy, poorer quality of instruction, lack of structure and limit setting" (p. 226) as well as emotional warmth of the home. Further, "These data suggested that competence in boys of highly stressed mothers was in part due to the mothers' ability to buffer their sons from the effects of stress" (p. 331).

Pianta et al. (1990) wrote about the two genders, "Like the boys, the competent girls were more intelligent, had better language skills, and had more positive home environments." (p. 331). However, in the girls, competence was most highly related to positive maternal personality characteristics as assessed by the Sixteen PF Personality Assessment gathered when the children were 64 months old. In summary, "These data

were interpreted to suggest that competence in girls depended on their mothers' personal adjustment, which may have had the double benefit of buffering their daughters from the negative effects of stress and also providing their daughters with a role model for positive coping" (p. 331).

The findings suggested that "maternal stress was related to markedly maladaptive mother-daughter interaction" (p. 332). The interaction between mother and child showed mothers' lack of support for their daughters, use of intrusive and hostile attempts to interact, and a lack of persistence by the girls, low enthusiasm toward the task, noncompliance, and avoidance of their mothers. Personal Stress, which was experienced by the mothers between the birth of their daughter and 42 months, accounted for almost one-quarter of the variance of avoidance of their mothers by girls.

Summary

Summarizing this section on parenting stress and child cognitive functioning, the following statements can be made:

- (a) When the parent-child system was stressed, whether by threats to the interpersonal relationship of the mothers with their children and/or significant others, the child was often found to have lower cognitive verbal and school functioning.
- (b) Parenting stress in relation to child cognitive outcomes revealed an inverse pattern. When the parenting stress was low, the child's verbal cognitive functioning was higher than when parenting stress is high.
- (c) The studies in this section on parenting stress and child cognitive functioning examined the parent's rather than the child's unique life events stress and may have missed the more direct influence this stress could have on the child's verbal cognitive functioning. However, it should be kept in mind that in many cases if the parent experiences a life event, the child does too (e.g., divorce, birth of a sibling, moving). As mentioned in the section on child stress and parenting stress, it is often the actions or the pathology of the parent that are influential in the type and amount of the child's life event(s).

(d) The relationship between parenting stress and child cognitive functioning is unclear in preschoolers. This is due to a measure of parenting stress made up exclusively of stressful life events for the mother in the study with preschoolers (Pianta et al.). Issues such as the child's characteristics were not assessed. McIntire's study on school age children used a more well-rounded measure of parenting stress, but was limited in generalizability to preschoolers as it measured children in a different developmental level. The preschool period is considered to be the most stressful for parenting (Abidin).

Child Cognitive Functioning and Demographics

Many studies have found children differ in cognitive functioning based on social class demographic indicators. The five variables of interest in this study were parental educational level, parental employment status, parental marital status, parental age, and ethnicity. In this section, fourteen studies will be reviewed. They are reported in the order of those studies which included the most demographic variables of interest (parental educational level, employment status, marital status, age, and ethnicity) to those that looked at the demographics individually. About half of the studies in this section were conducted with preschool children and the other half with school age children.

Broman, Nichols, and Kennedy (1975) studied 26,760 four-year-old children in the Collaborative Perinatal Project of the National Institute of Neurological Diseases and Stroke. Eighty-two variables were found to be statistically related with Stanford-Binet scores. The results of the multiple regression analyses showed that maternal education and the socioeconomic index (a composite of head of household education and occupation, and family income) contributed the largest proportion of explained variance when prenatal, neonatal, and childhood variables were added. This effect held across sex and race of child. In addition, for some subsets of children, presence of father in the home was also related to cognitive functioning. Broman et al. also compared the Stanford-Binet scores of the children and found that white children had a higher mean IQ score than Black children, most noticeable in the middle and upper class children.

Preschool girls and their parents above average in socioeconomic status (N=33) were studied by Poresky and Whitsitt. The Peabody Picture Vocabulary Test-Revised was found to be significantly associated with the level of formal education of their mothers.

Laosa (1982a) used a sample of 50 white intact families of children approximately 3 years of age to measure predictors of intellectual competence in preschoolers. The sample was chosen to be representative of this family composition with respect to socioeconomic characteristics. The Preschool Inventory was used which tests among other things, verbal skills "defined by teachers as expected of children in kindergarten" (p. 19). Predictors of cognitive functioning were mother's "Socioeducational Value" defined as mother's education and occupation, how much she reads to the child, maternal modeling, how much others read to child, child sex and age. Using path analysis, Laosa found that "the influence labeled for easy reference 'mother's socioeducational values' is the most important determinant of the child's performance on the Preschool Inventory, at least 0.6 times more important than any other source" (p. 32).

Whiteman and Deutsch (1968) studied social disadvantage and intellectual and language development in a sample of 165 elementary school children. SES was measured with the Empey Scale of Occupational Prestige, which assessed education and occupation for head of household. Language and intellectual development of the children was measured by the Gates Reading Score, the Lorge-Thorndike IQ, the WISC Vocabulary subscale, and the Orientation Scale (a verbal test tapping the child's fund of general information and conceptual understanding). The SES index of education and occupation was significantly correlated with all the cognitive measures used in the study.

Zill and Peterson (1982) reported on data collected in the Foundation for Child Development's National Survey of Children (Zill, 1983) on 2,279 7-11-year-old children. Subjects were chosen based on a national probability sample, but minorities were oversampled for this study. Measures included the Peabody Picture Vocabulary Test and a test of Practical Skills, community size and type, family income, parent educational

attainment, family size, and ethnic group. Education was the best predictor of the child's picture-vocabulary test of the family characteristic examined. The authors reported the following results:

The relationship between parent educational attainment and the child's vocabulary score was essentially linear, with more than a full standard deviation separating the mean vocabulary score of children in the highest parent education category (college graduates) from those in the lowest education category (grade school dropouts). When parent education was entered into a multiple classification analysis along with the other family characteristics the strength of the relationship between education and vocabulary score was reduced somewhat. However, there was still a difference of nearly three-quarters of a standard deviation in vocabulary scores between top and bottom education categories. (p. 354)

Maternal Employment with respect to preschoolers' cognitive outcomes were examined by Baydar and Brooks-Gunn (1991) using data from the Children of the National Longitudinal Survey of Youth. This topic was of interest to the authors because, "the number of women who were employed and who had children under age 6 increased from 2.3 million in 1960 to 7.1 million in 1988 (U.S. Bureau of the Census, 1989)" (p. 932). Subjects were 572 three to four-year-old white children of young mothers, most of whom had not completed high school, and most of whom were married at the birth of the child. The majority of the group lived in poverty. Children were given the Peabody Picture Vocabulary Test-Revised. In this study, maternal education and ability were used as covariates. The coefficient which indicated that the mother was continuously employed on the PPVT-R was significantly positive. "Hence, these data suggest that given the mother was employed in infancy, continuous maternal employment during early childhood was not detrimental and might be slightly more beneficial than intermittent employment" (p. 938). In looking at continuity another way, children showed more negative effects when their mothers worked an average of 10-19 hours than children whose mothers worked an average of 20 or more hours. A job with fewer hours might be more variable from day to day or week to week.

Shinn (1978) did a meta-analysis to review father absence and children's cognitive performance as measured by tests of IQ and school achievement. Twenty-eight (the great

majority on elementary and high school age students) of 54 studies reviewed met the methodological adequacy criteria. Of these, detrimental effects of father absence were found in 16, no significant effects were found in 9, and positive or mixed positive and negative effects were revealed in 3. The authors report, "the cognitive differences between children from intact and fatherless families were of some consequence. They ranged up to 1.6 years in achievement, .9 standard deviation units in IQ and aptitude, and .8 of the difference between a B and a C in grade point average" (p. 312).

A study with preschoolers was conducted by Eiduson (1983) in which traditional versus non-traditional families were studied with regard to the child's cognitive and intellectual development. Subjects were 200 families "generally successful and affluent" (p. 426) with an equal number of nuclear, single mother, social contract (unmarried), and communal families. Overall, the author reports that the child who experiences "elevated levels of stress in the family is likely to have lower scores on intelligence tests, such as the Stanford-Binet, by age three" (p. 431). The events determined to affect cognitive functioning at this age were those related to the personal sense of well-being of the parent, as well as those that pointed to a troubled parent-child relationship. The author concluded that, "while this is true for the sample as a whole, in the first three years, the child most susceptible to low cognitive scores if the mother herself has psychological problems, is the child of a single parent" (p. 432).

Allison and Furstenberg (1989) studied how marital dissolution affected children's functioning. Subjects were 1,197 seven through 11-year-old children in the National Survey of Children, which chose subjects based on census proportions nationally. Of these, 328 had experienced a marital dissolution. Parents, teachers, and children contributed to assessment of well-being of the child, and academic difficulty among others. Findings indicated that dissolution of the marital relationship had a significant relationship to reduced well being, particularly in teachers' reports. Also, "not surprisingly," the

impact of the mother's education was stronger than the effects of marital dissolution for academic performance, while weaker for the other outcome measures (e.g., behavior).

The authors came to the following conclusion:

A decline in effects with age at separation suggests that young children are especially vulnerable, either (a) because they are more dependent on their parents and hence, are less protected by extrafamilial supports such as teachers or peers or (b) because they are in a more formative stage of development and are therefore less resilient when faced with a traumatic event. On the other hand, an increase in effects with time since separation suggests that marital dissolution is not an isolated event but only the beginning of a continuous exposure to a long-lasting adverse situation that produces cumulative effects on the child. (p. 545)

Several studies have found that the age of the child's mother was related to the child's cognitive functioning. For example, Belmont, Cohen, Dryfoos, Stein, and Zayac (1981) found in a sample of 67,000 that as maternal age increased, 6-11-year-old's WISC-R scores increased. Broman (1981) found this same relationship between maternal age and 4-year-old's Stanford -Binet scores in a sample of approximately 36,000 from lower to upper class groups. Maracek's (1980) study (cited in Baldwin & Cain, 1981) looked at just the low-income group of the sample Broman (1981) studied (approximately 19,000) children and found that Stanford-Binet scores at age 4 increased as mother's age increased.

Deutsch and Brown (1967) studied 543 first- and fifth-grade children who had scores from the Lorge-Thorndike Primary Battery. They found that mean IQ scores were higher for white children when compared to black children, with these differences increasing as socioeconomic status rose. Schooler and Anderson (1979) reported that in the preschoolers they studied, white children scored higher on the Slosson Intelligence Test.

Summary

In concluding this section on child cognitive functioning and demographics the following generalizations seem warranted:

- (a) The demographic variable of parental educational level was one of the most powerful and consistent variables related to child cognitive functioning.

- (b) Parental age followed education level closely with being related in several large and well-controlled studies to child cognitive functioning.
- (c) Occupation and income were related to child cognitive functioning, but they lost their potency when "family factors" were removed. As Zill and Peterson (1982) commented, "this indicates that poverty or affluence is less important as a determinant of a child's intellectual development than are other family factors, such as parent education and family size, with which family income is associated" (p. 355).
- (d) The relationship between maternal employment and child cognitive functioning may change as a function of the child's dependency on the adult. In addition, it appeared a stable job or continuous employment was better than erratic employment for the child's cognitive functioning.
- (e) Father absence was clearly related to both IQ and school achievement. Further, marital dissolution was often only the beginning of cumulative stress on the child.
- (f) Ethnicity was related to child cognitive functioning with minority children scoring below white children. However, this difference became greater when comparing children of different ethnic backgrounds who were in the middle to upper class groups. For children in the low socioeconomic status group, the differences were not as great.
- (g) Eight studies in this section were conducted with preschool age children and six with young elementary school age children, making the generalizability of a relationship between sociodemographic variables and child cognitive functioning in preschoolers at least moderate.

Child Life Events Stress and Demographics

Studies have also shown the incidence of child stressful life events to be related to social class demographic variables. This section presents eight studies, two with elementary school age children, two with preschool age children, and four with adults. The demographic variables were parental educational level, parental employment status,

parental marital status, parental age, ethnicity, and occupation and place of residence (these last two will not be measured in the proposed study).

Chandler, Million, and Shermis (1985) measured the incidence of stressful life events in a sample of 277 children aged 5 through 14, randomly selected from a school district representative on socioeconomic status. The study's purposes were to collect baseline data on the incidence of stressful life events of children, and to study the relationship of age and SES to the number of events reported for the children.

The measure of life stress was the Children's Life Events Inventory (Chandler) and socioeconomic status (SES) was determined by using Hollingsheads' Index of Social Status based on education and occupation. Three SES groups were formed; low, middle, and high. ANCOVA revealed significant differences among the number of parental reported events in these three SES groups. Post hoc analysis showed "a significant difference in the mean number of events reported between the low and high SES groups" (p. 744) with the low SES group reporting more events.

Toomey and Christie (1990) reported that, "there are few studies that directly ask children if they are concerned about unemployment, poverty, or financial losses in their families" (p. 427). Brown, Cowen, Hightower, and Lofyczewski (1986) investigated sociodemographic differences in the perception and experience of stressful events in a sample of 503 fourth through sixth grade children. The measure of stress was taken from existing life events measures with a few new events included, and asked the children to rate the occurrence of the events. Of these, parental unemployment was ranked fifth in frequency. This event occurred more often in urban children and was rated more upsetting by urban children. Brown and Cowen (1988) found that these two groups were significantly different on common sociodemographic indicators including family income, median house value, percentage minority enrollment, and percentage at poverty level. Further analysis revealed that the children living in the urban areas experienced more stressful events than those children living in the suburbs.

Eiduson (1984) studied child stress in traditional versus non-traditional families who were "generally successful and affluent" (p. 426). Data were from the Family Styles Project involving 50 nuclear families, 50 single mother families, 50 social contract families (unmarried parents), and 50 communal families. The traditional nuclear family was found to experience a lesser number of stressful child life events than the other family types. Single-mother families were the most "susceptible" to stress.

As many of the events on life events measures are similar to the ones on child life events measures, children of mothers will probably also experience these events. Swanda and Kahn (1986) studied rural persons between the ages of sixteen and sixty-six and found significantly higher levels of stress in the younger subjects. Samuelsson (1982) initially studied 800 women, followed up six years later with 677 of the subjects, and found that recent undesirable life events decreased with age. Beard (1982) found in university students, faculty, and employees that there were fewer recent stressful life events reported with increased age.

Ethnicity has also been related to the number of life events experienced. Coddington (1972b) found in a group of 806 preschoolers, that white children had both a higher number of life events as well as a higher number of social readjustment units, although not significantly so. Norris (1992) studied 1,000 adults and found that exposure to life events over the life span was higher among whites than among blacks.

Summary

In summary of this section on child life events stress and demographics the following conclusions offered:

(a) Education, unemployment, single motherhood, parental age, and ethnicity were all related to the number of stressful life events the child experiences. When education levels were high, and/or mothers were employed, and/or when the father was present, the parental figure was older, and the family ethnic group was minority, the child tended to experience fewer stressful life events than when educational levels were low,

mothers were unemployed, the father was absent, parent was younger, and family ethnic group was white.

(b) Parental occupation and place of residence (urban v rural) were also related to the child's stressful life events. The more prestigious the occupation of the parent the lower the number of stressful life events for the child. Children who lived in urban areas experienced more stressful life events than children who lived in a rural environment.

(c) The studies in this section were conducted with early elementary school age children and to a lesser extent with preschoolers, so it is not known if the relationship between child stress and these demographics is present to the same degree in preschoolers.

Parenting Stress and Demographic Variables

Studies of parenting stress have focused on the quality of the mothers' engagement with the child under different environmental conditions. Seven studies, one with parents of school age children, three with preschoolers and three with infants will be reviewed in this section. As has been mentioned previously, there are several slightly different ways used in the field to measure parenting stress.

A longitudinal study on poor urban black mothers was reported on by Thompson and Ensminger (1989) examining psychological well-being. At the first interview, 1,241 mothers of first graders participated. At the ten-year follow-up, 76% were reinterviewed. Some differences were found between the mothers who were reinterviewed and those who were not on mothers' age (young mothers refused more often), geographic mobility, and parochial school attendance. There were no differences on original well-being, early family income, welfare status, or composition of the household. The measures included: a global sadness and tension scale, items specifically related to recent psychiatric symptoms, five stressful life events, social support, and social and background characteristics including age of mother, number of children in home, adult household composition, education level, employment, and poverty status.

At time 1, psychological well-being was not significantly related to the number of adults in the home. However education, age, and employment had significant relationships with mothers' well-being. At time 2 however, the presence of another adult in the home was significantly related to well being. Education and employment continued to be related to well-being. Stressful life events had a significant relationship with mothers' well being at time 2. Social support (e.g., close friend, church attendance) appeared to mediate this stress on mothers' psychological well-being.

Parenting stress was explored in a sample of 85 African American low-income Head Start mothers by Hastings-Storer (1991). One purpose of this study was to compare the scores of these mothers to the original norm group of the Parenting Stress Index (Abidin, 1983), which was predominantly white middle class. In comparing the experimental group to the norm group, there was a significant difference on stress levels between groups on the demographic variables: race, marital status, educational level, employment status, income level of household, educational level of father, and employment status of father. Between the experimental and norm groups, there was a significant difference on PSI total stress and for each of the PSI Child Domain Stress scores (overall and for all Child Domain subscales). This was also true between groups on the Parent Domain Stress overall, and the subscales: Attachment, Sense of Competence, Social Isolation, and Relationship with Spouse. No differences were found for Depression, Restriction of Role, or Parent Health.

Three study or focus groups were formed into the categories of Normal, Borderline, and High Stress from among the experimental mothers, using cutoff scores defined by Abidin (1990). Significant differences among these groups were found on the demographic variables: income level of the household, educational level of the mother, employment status of the mother, and marital status. There was a significantly higher percentage of mothers in the high stress group with household incomes below \$10,000. The relationship between educational level of mother and stress group shows that mothers

with lower levels of education had higher amounts of parenting stress. A significantly greater percentage of mothers who were unemployed were in the high stress group. A significantly greater percentage of the never married and separated/widowed/divorced mothers were in the borderline or high stress groups compared to the married mothers. There were no significant differences for age of mother, age of father, age of index child, or number of children in home.

Focusing on "chronic" stressors involves studying demographic variables to a large degree. Conger, McCarty, Yang, Lahey, and Kropp (1984) studied chronic stressors and the influence of psychological characteristics as mediators of mothers' parental teaching actions with their preschool child in a sample of mothers. Subjects were 74 families who were selected to be heterogeneous on income, race, and number of children per families. While attempting to draw a heterogeneous sample, the authors described their final sample as having below-average incomes, above-average number of children, and as being disproportionately nonwhite in terms of the national standard; but this was not unusual in the rural South where the research took place. Two subsets of participants were those studied in a preschool school-based setting and those studied in their homes. Within each setting some families had been identified by a county agency as being physically abusive to one or more children in the home. The demographic conditions as measures of chronic stress were: (a) financial stress (income and dependence on public support); (b) family structure (number of children and single-parent head of household); and (c) past events that may be associated with continuing stressful life conditions (educational achievement and mother's age at first birth).

Results indicated that the subgroups of blacks and whites, abusive and nonabusive, mothers of children in the school-based preschool and mothers of children at home, older and younger children, and male and female children were not significantly different from one another. Positive relationships between psychological risk for elevated levels of aversive maternal behavior, depressed rates of supportive interactions, and increasing

environmental stress (public assistance and number of children) were found in all cases. Further, with only one exception (negative perceptions and number of parents), elevated levels of aversive maternal behavior and depressed rates of supportive interactions were inversely related to decreasing stress (i.e., income, education, age at first birth, number of parents in the home). Almost 53% of the variation in the psychological measures was accounted for by these demographic circumstances. A negative relationship between increasing environmental stress and positive maternal behaviors was observed. Decreasing environmental stress was positively related to supportive maternal interactions. The demographic predictors which were the most consistent for maternal behavior were age of mother at first child's birth and mother's educational level.

Using hierarchical regression, the psychological variables accounted for about 14.5% of maternal behavior variance when entered first into the prediction equation. From 25% to almost 37% of the variance in maternal behavior was accounted for when the set of environmental stressors (demographics) was entered first. However even after the environmental stressors were controlled, a significant relationship was present between the mothers' psychological characteristics and the mothers' behaviors. This taps the multi-dimensional definition of parenting stress in which both psychopathological and situational variables contribute to parenting stress.

In a sample of 312 women who had recently become mothers, Turner and Noh (1983) studied the link between social class and psychological vulnerability among women. Social class was determined by husband's occupation. Psychological distress and stressful life events for mothers were measured. The authors found social class to be significantly related to life stress. Further, regression showed that "within the lower class, stress appears to be translated into distress at a rate approximately 1.6 times that observed in the remainder of the population" (p. 6). The results of this section support the findings of Roghmann, Hecht, and Haggerty (1975; cited in Webster-Stratton, 1990) who reported

that the incidence of major stressors was two to four times greater for poor or lower-class families than for middle-class families.

Abidin (1990) who constructed the Parenting Stress Index, states that mothers who are young tend to have higher Parenting Stress Index scores, in the Parent Domain in particular. Belsky, Lerner, and Spanier (1984) cited statistics from the Alan Guttmacher Institute (1981), which found that the majority of pregnancies of teenage mothers were unplanned. Younger (1984; cited in Abidin, 1990) discovered when studying new mothers that the scores on the Parenting Stress Index were significantly higher with both unplanned and unwanted pregnancies.

As mentioned above, Hastings-Storer (1991) compared the scores on the Parenting Stress Index of black Head Start mothers with the scores of the norm group of the PSI who were mainly white middle-class females. She found the black mothers to be significantly higher on parenting stress on the Total score, the Child Domain score, and the Parent Domain score. Of the thirteen factors which make up the PSI, there were only three on which there were not significant differences between the two ethnic groups. Millar (1986; cited in Abidin, 1990) found significant differences for ethnicity on the PSI also on the Total, Child Domain, and Parent Domain scores when studying black Bermudian mothers and using a cutoff score of stress at or above the 90th percentile.

Summary

The following remarks can be made in summary of this section on parenting stress and demographics:

- (a) All five of the demographic variables, parental educational level, parental employment status, parental marital status, parental age, and ethnicity were related to parenting stress.
- (b) Of these demographic variables, educational level was the most consistent in its relationship to parenting stress. The higher the mother's education, the lower her parenting stress. Having more education may mean less stress, while there are sometimes

situations when mothers work or are in a relationship which brings increased stress into the parent-child relationship. Age may function in a similar way with respect to parenting stress than it does to life events stress, that is being older was related to experiencing less stress, while being of a minority ethnic background was associated with more parenting stress.

(c) The demographic variables of income and occupation were also related to parenting stress. The higher the income and prestige of the job, the lower the level of parenting stress.

(d) All but one of the studies in this section were conducted with children below school age and thus have good generalizability to preschoolers and point to a relationship between the sociodemographic indicators and the amount of stress present in the parent-child relationship. However, the problem of agreeing on an operational definition of parenting stress somewhat cloud these findings.

Concluding Statements

A strong relationship between child stressful life events (child stress), parent-child relationship stress (parenting stress), and child verbal cognitive functioning has been reported in numerous studies with middle and low income children who have already entered school. Far less is known about these relationships in preschool children, however, especially children who are socioeconomically low income. It is within this group, most at risk for experiencing stress, that research needs to be done. Wyman et al.'s (1991) comment is illustrative:

These findings suggest that a rich understanding of resilient outcomes under stressful life conditions must look beyond child qualities, i.e., it must also reflect the family context in which the child develops and the matrix of his/her relationships with primary caregivers. One factor that may potentiate negative developmental outcomes for children who grow up under stress may be the disruption of supports and structures that facilitate adaptive caregiver-child interactions. Conversely, an environment that facilitates consistent, positive attachment to a caregiver may provide resources that enable the child to adapt well in spite of such stress. Although it remains for future studies to clarify precisely how such relationships enhance a child's ability to cope, our findings suggest that this may happen in different ways at different developmental stages. (p. 423)

With this research history in mind, a number of overall conclusions may be derived from the literature reviewed in this chapter. The review of the literature examining the relationships between child stress, parenting stress, child cognitive functioning (the major variables in this study) and the demographic variables revealed a total of forty-four studies. The breakdown of these studies is as follows: seven studies with all three major variables; three studies of child stress and child cognitive functioning only; three studies of child life events stress and parenting stress only; two studies of parenting stress and child cognitive functioning only. This yields a total of fifteen studies of the three major variables examined both together and in pairs. In addition, there are twenty-nine studies of the demographic variables of maternal education level, maternal employment status, maternal marital status, maternal age, and ethnicity as related to the three major variables.

1. From this literature, it can be concluded that there is at least a moderate inverse relationship in the range of -.02 to -.33 between the stressful life events a child experiences and his/her cognitive performance. This relationship is mediated by the interaction between parent and child in two ways. First, high stress in the parent-child relationship is related to a higher number of stressful child life events. Correlations range from .11 to .56. Secondly, after high stress events occur, high stress in the parent-child relationship is related inversely to lower cognitive functioning in the child. These correlations are in the range of -.04 to -.36.

2. In the fifteen studies in this literature review which examined child stress, parenting stress, and child cognitive functioning, more than twice as many studies have been conducted with school age children than with preschool age children. Only four studies were found which used preschool children exclusively as subjects. These four studies indicated that preschool children also experienced stress and that such stress was inversely related to their verbal cognitive performance. Correlations are a bit lower in the range of -.02 to -.26. These correlations are influenced partially by the fact that the number of life events was partly a function of age, with younger children having experienced fewer

events than older children. The direction of the relationship is the same as that seen with older children.

When the mothers of these children are experiencing high stress, the quality of the parent-child relationship suffers. This in turn is related both (a) positively to the amount of stress the child experiences (correlations in the range of .11 to .32) and (b) negatively to the child's verbal cognitive functioning (correlations between -.04 to -.28). These correlations are again slightly lower than when older children are included. The directions of these relationships are similar to those found with school age children and their parents. That is, when child life events stress and parenting stress are high, the child's verbal cognitive functioning is lower than when child stress and parenting stress are low.

However, all four of these studies with preschoolers (Bee et al., 1982; Murphy & Moriarty, 1976; Pianta et al., 1990; and Prince et al., 1972) have at least one of the following methodological problems: (a) using a symptoms measure of stress (more subjective) rather than a life events measure of stress (more objective) for both the mother and the child; (b) using unreliable instrumentation to measure stress; (c) collecting data about the child's stressful life events by word of mouth rather than using a formal measure; (d) assessing the stressful life events of the "family" rather than events specific to the developmental period of the preschool child and to the context of parenting. This does not yield the most sensitive measure of child stress and parenting stress; (e) not including characteristics of the child (e.g., temperament) when measuring parenting stress. The contribution of the child is important in understanding the total amount of stress present in the parent-child relationship; and (f) not including poverty level families as subjects, limiting generalizability to this social group. Stress research in general has found higher levels of negative life events stress and parenting stress in low-income families than in higher income families. There is substantial research documenting lower cognitive functioning in lower income children compared to higher income children.

3. One group of preschoolers who may be particularly susceptible to stress influencing verbal cognitive functioning is low-income children in compensatory education programs. Only the Prince et al. (1972) study which had both low- and high-income subjects included low-income children in compensatory education programs. The children were exposed to either DISTAR (a Head Start model) or Sesame Street. While significant relationships were found between child stress, parent stress, and child verbal cognitive functioning in the low income families, unreliable instrumentation was used to measure stress. The measures of stress (both completed by the mother) were not independent as thought to be. The stress symptoms reported by the mother for her child were heavily influenced by her own reported stress symptoms. The stress measures were of symptoms of stress which is more subjective than reporting life events. Further, the parent stress measure did not include the child's characteristics along with the parent's characteristics, both found to be important in accurately assessing the amount of stress present in the parent-child relationship.

4. Certain demographic variables have been found to be related to stress and the child's verbal cognitive functioning. This literature review indicates that across both low and high income groups, the five sociodemographic variables of maternal educational level, maternal employment status, maternal marital status, maternal age, and maternal ethnicity facilitate coping or promote vulnerability in both children and their parents. They relate to (a) the number and type of life events occurring in the family, and (b) the availability of personal and social resources for coping with stress. Findings indicate that maternal educational level has an inverse relationship with child stress and parenting stress and a positive relationship with child verbal cognitive functioning. Studies on employment reveal that when mothers are employed, child stress and parenting stress are lower and child verbal cognitive functioning is higher. When mothers have a spouse or significant other in the home, child stress and parenting stress are lower and child verbal cognitive functioning is higher. When mothers are older, child stress and parenting stress are lower

and child verbal cognitive functioning is higher. Finally, when mothers are of a minority ethnic background, parenting stress appears to be higher; when they are white, child stress is higher, but so is child verbal cognitive functioning.

Less is known about how these demographic variables relate to stress resiliency and vulnerability in children and their families within the exclusively low socioeconomic group than is known about differences between socioeconomic groups. This is especially true with preschoolers and their families. Twenty-nine studies were done which examined demographics in relation to the three major variables of child stress, parenting stress, and child cognitive functioning separately. Of these, thirteen were conducted with preschoolers. Of the thirteen, ten used both low and middle/high or just middle/high income families. Just three of the thirteen used an exclusively lower class group.

Two studies (Conger et al., 1984; Hastings-Storer, 1991) which focused on exclusively low-income families were studies of parenting stress. There was no study found which examined child life events stress in relation to the demographic variables. Only one study was found using a low-income sample which looked at child cognitive functioning and a demographic variable, this was age (Maracek, 1980; cited in Fein & Fox, 1990).

5. Methodological flaws were also found in the literature on school age children, though they were less numerous than those with preschoolers. These were: (a) assessing child stress and parenting stress retrospectively (5 to 7 years) to the preschool years; and (b) measuring school success (e.g., classroom problem behaviors and competencies, learning problem, good student, peer sociability) rather than cognitive functioning. School success can be influenced by social skills, making it difficult to clearly identify the child's level of cognitive functioning instead of his/her social/emotional functioning.

6. No studies were found which measured child stressful life events, parent-child relationship stress, and child verbal cognitive functioning in low-income preschoolers involved in early education compensatory programs and their mothers (or fathers). Only

two studies (Pianta et al., 1990 and Hastings-Storer, 1991) were found which used an exclusively low-income group of preschoolers and their mothers. The focus of stress in both of these studies was that being experienced by the mother. In the case of Pianta et al., mother's stress was correlated with child verbal cognitive functioning.

This lack of attention is surprising since children experience events just as adults do and low-income children are the group considered most at-risk for problems in verbal cognitive functioning in school. Only one study (Prince et al., 1972) measured child stress symptoms, parent stress symptoms, and child verbal cognitive functioning in low income children who were also in compensatory early education programs. As previously mentioned, this study compared low-income children in compensatory programs with middle-income children in preschool programs and had several major methodological flaws.

CHAPTER 3 METHODOLOGY

Purpose

The purpose of this study was to examine the relationships between child verbal cognitive functioning, child life events stress, and parent-child relationship stress in a sample of low-income preschoolers and their mothers (or mothering one) in early childhood compensatory education programs. In addition, the influence of the following demographic variables was examined: mother's education level (number of years of school completed), mother's employment status (employed or unemployed), mother's marital status (married or unmarried), mother's ethnicity (minority or white), and mother's age (continuous).

Research Questions

The following questions were posed in examining these relationships.

1. Is there a relationship between child verbal cognitive functioning and child life events stress, parent-child relationship stress, maternal education level, maternal marital status, maternal employment status, maternal ethnicity, and maternal age?
2. Is there a relationship between child verbal cognitive functioning, child life events stress and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age?
3. Is there a relationship between child verbal cognitive functioning and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress and parent-child relationship stress?

4. Is there a relationship between child life events stress and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age?

5. Is there a relationship between child life events stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for parent-child relationship stress?

6. Is there a relationship between parent-child relationship stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress?

Hypotheses

The following hypotheses were tested to answer the research questions posed:

1. There will be a significant relationship between child verbal cognitive functioning, child life events stress, parent-child relationship stress, maternal education level, marital status, employment status, ethnicity, and age.

2. There will be a significant relationship between child verbal cognitive functioning, child life events stress, and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age.

3. There will be a significant relationship between child verbal cognitive functioning and the demographic maternal variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress and parent-child relationship stress.

4. There will be a significant relationship between child life events stress and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age.

5. There will be a significant relationship between child life events stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for parent-child relationship stress.

6. There will be a significant relationship between parent-child relationship stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress.

Population

The population of parents studied were all mother-child dyads enrolled in the Alachua County Head Start program during the 1993-1994 school year. For purposes of examining the generalizability of the study it should be noted that Alachua County, Florida has a large group of children and families living in poverty. The Gainesville Metropolitan Statistical Area (GMSA) is ranked as the fourth lowest in family income in the United States, with 23.6% of all families who live in Alachua County living below the poverty level. In the county, 47 out of every 1,000 families with children are headed by females and live in poverty. There were 1,022 children in Alachua County on child care waiting lists as of September 1991. Less than a third of the parents were employed full-time (Alachua County School Board, 1993).

In the United States, Alachua County is ranked 97th out of 150 counties cited as hunger and poverty counties by the Physician's Task Force on Hunger in America. In Alachua County, approximately 42% of all students in the public schools receive free or reduced breakfast and lunch. In several elementary schools, the percentages are near 80%. Alachua county makes up 1.4% of the total population in Florida, but has 2.1% of the state's monthly average number of families on public assistance (Alachua County School Board, 1993).

Educationally in Alachua County, two-thirds of those who receive the public assistance of Aid to Families with Dependent Children (AFDC) do not have high school

diplomas. An estimated 13% of the adults in the county have less than an eighth-grade education (Alachua County School Board, 1993).

Looking specifically at the 1992-1993 Head Start population in Alachua County, the population of eligible Head Start parents consists of 873 families. Of these parents, 653 were female and 220 were male. Sixty-eight had a 9th grade or less education, 93 had a 10th grade education, none had just an 11th grade education, 465 had a 12th grade education, 14 had a GED, 134 had some college or training, and 81 were college or training graduates. For employment, 395 were full-time, 15 were part-time, four were seasonal, 446 were unemployed, and 10 were retired or disabled (Alachua County Head Start Summary Demographic Report 1992-1993, 1993).

Of these 873 who were eligible, 732 families actually participated in the Head Start program. Of these, 456 were eligible for Medicaid, and 380 were Aid For Families With Dependent Children (AFDC) recipients. With regard to parent status, 522 of the families were headed by one parent, 158 by two parents, 4 by a foster parent, and 48 by a non-parent. Of the 732 children, 522 were black, 10 were Hispanic, 1 was Native American, 14 were Pacific Islanders, and 185 were white. There were 372 female children and 360 male children (Alachua County Head Start Summary Demographic Report 1992-1993, 1993).

Subjects

Subjects were randomly drawn from a pool of approximately 653 female parents participating in Head Start for the 1993-1994 school year. A sample of 51 mother-child dyads were drawn from 6 schools randomly selected from Gainesville City schools. The subjects were drawn from the five schools with the most students enrolled in Head Start. The school or one of the schools with the fewest number of students would have served as an additional pool should the need have arisen, but was not needed. Dyads were excluded if the child had been diagnosed with or suspected of having a learning disability, mental retardation, or any other neurological disorder (such as included in Public Law 94-142).

The 1992-1993 school year demographics show that 110 of the 732 Head Start children had been diagnosed as handicapped. Additionally, one was suspected of being handicapped, 6 had been referred but no diagnosis had been made, and 615 were non-handicapped (Alachua County Head Start Summary Demographic Report 1992-1993, 1993).

Mothers (or mothering females) only rather than fathers (or fathering ones) were asked to participate. According to Abidin (1985, 1990) females are most often the main caretakers of children. The Parenting Stress Index (PSI; Abidin, 1990) questions are written slightly more with the mother in mind. In addition this controlled the gender of the parent as a confounding variable.

Design

This study used a between-subjects correlational design. The independent variables in this study were: (a) child life events stress; (b) parenting stress-indicating the amount of stress present in the parent-child relationship; and (c) five demographic variables: maternal educational level, maternal employment status, maternal marital status, maternal age, and maternal ethnicity. The dependent variable was the preschool child's verbal cognitive functioning.

The operational definition of child life events stress was the seven factor scores from the items on the Coddington Life Events Record-Preschool Version. Parenting stress was operationally defined as the thirteen factor scores on the Parenting Stress Index. Maternal educational level was defined as whether the mother had a high school education or above or below a high school education. Maternal employment status was defined as employed (full- or part-time) or unemployed at the time of the data collection. Head Start asks if the home has one or two parents present. Marital status was defined as married or unmarried. Ethnicity was defined as minority or white. Maternal age was measured continuously.

In studying the demographic breakdown, it can be seen that in the total Head Start population, the one-parent and two-parent home groups were disproportionate in size. There are far more one-parent than two-parent homes. To address this, mothers were drawn until a ratio of at least 20 two-parent to 30 one-parent homes was reached, so that these two groups were more evenly sampled. This was important in the study of the relationship this environmental condition had on stress in parents and children and children's verbal cognitive functioning. In addition, the design included a reliability test which used the Cronbach Alpha procedure on the Coddington Life Events Record-Preschool Version. The results are presented later when the pilot study is discussed.

The dependent variable was the preschool child's verbal cognitive functioning. The combined score from the Language and Concepts subscales on the DIAL-R served as the operational definition of child verbal cognitive functioning.

Setting

The mothers' homes were suggested first for the location of data collection. If mothers felt uncomfortable doing the interview in their homes, the Family Services Center was available as a meeting place. For those parents who felt uncomfortable meeting either at their homes or at the Family Services Center, the interview took place at the Head Start center in which the child attended or the mother's place of employment. If none of these locations was suitable, a site mutually determined by the researcher and the mother (e.g., libraries, churches, shopping malls) would have been chosen, but this situation did not arise. The investigator encouraged the mother to choose a time of day for the data collection when activity was likely to be low (e.g., children were in school).

Instrumentation

Child Verbal Cognitive Functioning

In measuring preschool child verbal cognitive functioning (e.g., speech and language and conceptual functioning), instruments which tap developmental milestones are preferred over those which measure rate (Seymour and Wyatt, 1992). Milestones measure

what the child can do, not how quickly or slowly he can do it. This is important because the rate of language development is highly variable in preschool children, while milestones are more stable as they are sequential in nature. The Developmental Indicators for the Assessment of Learning-Revised (DIAL-R) was constructed using the milestones approach by Mardell-Czudnowski and Goldenberg (1990). The DIAL-R measures typical developmental behaviors that children ages 2-0 through 5-11 can demonstrate. The instrument is an individually administered comprehensive screening test which follows an empirically based developmental sequence of language, conceptual, and motor behaviors.

The test consists of three areas--Motor, Language, and Concepts. Each area has eight items and the items are subdivided into tasks. For this study, only the Language and Concepts area scores were used. The DIAL-R is administered each year by the child's Head Start teacher and/or Head Start Teacher-Student Liaisons. Alachua County Head Start Administration scores the test and provides feedback to the classroom. Parents are informed of their child's test results and their meaning from the Head Start Teacher. Test results are kept in the Head Start classroom and become a part of that child's curriculum for the year. Administration and scoring of the test takes place in the fall and again in the spring of the school year. After pre- and post-testing, the scores are placed into the database of the Alachua County School Board. The fall administration was of interest in this study. The fall testing period for the 1993-1994 school year was set for late August through October. Two weeks are allowed for testing to be completed once a classroom receives a copy of the DIAL-R to allow rotation of the test kits.

Head Start teachers are trained on the use of the DIAL-R with extensive materials developed by the test authors. The training is conducted by the Early Childhood Program in Alachua County through a training manual and workshops lasting a full day before school starts. Trainees learn from the manual the type of test the DIAL-R is, the purpose of the DIAL-R, time to administer, materials, parents, what happens in each screening area, motivating a child, participation, and closure. Individuals being trained to give the DIAL-R

must do modeling, role playing, testing over knowledge of how to administer the test, and are observed while testing children before being allowed to test independently. Once the individual begins testing, the Teacher-Student Liaison provides on-going training.

Establishing rapport is critical. The authors of the DIAL-R write that the operator must be sure to have the child's attention before presenting the items. Further, the test administrator's attitude, verbal, and nonverbal communication are influential in getting scores that are reliable. Operators are instructed to keep a positive and calm attitude regardless of the child's responses. Finally, all attempts and performance, irrespective of what the child does or doesn't do, are to be acknowledged with praise, positive body language, and comments like "good" and "thank you". An example of a DIAL-R item is given here from the Language section for problem solving:

Item 7. Problem Solving.

- a) Say: OK, child's name, what do you do when you're hungry? If the child does not respond or gives a response that implies there is not food in the house to eat, prompt the child by asking: What do you WANT to do when you're hungry? [directions say stop here if child still doesn't answer]
- b) If the child did respond, continue by asking the following questions: What do you do when you want to go into a room that is dark? What do you do when you do when you want to go outside but it's raining? What do you do when you break something that belongs to someone else? (p. 13).

The DIAL-R represents one revision done in 1981 to standardize the test on a national sample, extend the age range downward to include younger two-year-olds, and to combine gross and fine motor skills into a single motor area. The instrument was standardized on a national sample of 2,447 children on the variables of sex, geographic region, size of community, and race. In addition, the norms were reanalyzed in 1990 to adjust inappropriate scores. Three norm groups are available with which to compare children. These are a Caucasian sample, a Minority sample, and a Census sample weighted to resemble 1990 U.S. estimates. Alachua County School System uses the Census norms.

Reliability. Test-retest reliability on the DIAL-R for Concepts is (.90) and for Language is (.77). Eight sites retested a total of 65 children within five weeks of the DIAL-R standardization. Internal consistency reliability is reported as (.78) for Concepts

and (.79) for Language using the Minority Norm Sample; (.74) for Concepts and (.73) for Language using the Caucasian Norm Sample; and (.76) for Concepts and (.72) for Language using the Census Norm Sample. Interrater reliability is reported for the original DIAL as between 81 and 99%. The authors report that "because 21 of the 24 DIAL-R items are identical to, or revisions of, DIAL items, it is likely that a similar study with the DIAL-R would produce similar results" (Mardell-Czudnowski & Goldenberg, 1990, p. 60).

Validity. Research done at Northwestern University during the DIAL development was used to predetermine criteria for the selection of tasks to be included and the scoring criteria. Chosen from an extensive list of possible consultants were eight well respected professionals. This group conducted the review for the content and for item bias of the DIAL. Reviewed were the design of the test development, the construction for each item, and scoring criteria. There was total agreement with respect to the general test development among all consultants. Only minor revisions based on individual suggestions were made.

The DIAL conceptual model underwent a revision. The original 315 test items were reviewed with respect to research published since the DIAL was developed as well as feedback received from DIAL coordinators and operators throughout the country. This resulted in a reduction of test items from 315 items to 155 items. Field studies yielded data which clustered most of these items into 31 items in a usable format. These 31 items formed the normative battery used in standardization testing.

DIAL-R items were analyzed in terms of the abilities they were intended to assess: perceptual, memory, previous learning association, kinesthetic awareness, coordination, and language. Most items were multidimensional. The DIAL-R items were also analyzed to determine their fit with an information-processing model based on input and output of the visual and auditory systems. To aid in the identification of strong and weak modalities across the DIAL-R, this model analyzed the items in these terms. In summary, for most items, even though a child might not understand what was said, he or she sees a

demonstration of what is expected. The output information clearly showed that all Language items required verbal responses.

The DIAL-R was compared with the Learning Accomplishment Profile-Diagnostic (LAP-D) on Head Start children (Barnett, Faust, & Samir, 1988) to determine construct validity. Significant validity coefficient correlations between similar scales on the two instruments (i.e., motor-motor, concepts-cognitive, and language-language) were obtained. Concurrent validity (a type of criterion validity) has been demonstrated for the DIAL-R. This type of validity is concerned with the relationship of the test being validated with a test with similar criteria given at the same time. Lichenstein (1981) found the DIAL-R to be significantly correlated with the Denver Developmental Screening Test (DDST), the Stanford-Binet Intelligence Scale (SBIS), the Peabody Picture Vocabulary Test (PPVT), and the Woodcock Johnson Psychoeducational Battery (WJPEB).

Mardell-Czudnowski and Goldenberg (1990) also compared the DIAL-R with the Stanford Binet because, "although the DIAL-R is not intended to be a test of intelligence, it provides a gross estimate of the level of development of intellectual skills needed to succeed in kindergarten and first grade" (p. 67). Using cutoff scores based on + and - 1.5 standard deviations, the DIAL-R had an agreement index of 89% with the Stanford Binet. In another study using an ability and achievement test, the Kaufman Assessment Battery for Children (K-ABC) correlated with the Total DIAL-R on the K-ABC scales of Mental Processing Composite, Sequential Scale, and Achievement Scale (Parks-Trace, 1984; cited in Mardell-Czudnowski & Goldenberg, 1990).

The DIAL-R has been examined for predictive validity (a second type of criterion validity). Several studies have demonstrated that the DIAL-R is an excellent predictor of kindergarten performance and achievement (Vilmure, Achenback, Woodard, & Sheehan, 1984; cited in Mardell-Czudnowski & Goldenberg, 1990; Smith, 1986; cited in Mardell-Czudnowski & Goldenberg, 1990; Jacob, Snider, & Wilson, 1988). (see Appendix A for the DIAL-R)

Child Life Events Stress

The Coddington Child Life Events Record (1972) has a preschool, child, and adolescent scale. In a review of child life stress measures, Johnson (1986) stated the Life Events Record was "the best-known and widely used life stress measure for younger age groups" (p. 32). The Coddington Life Events Record-Preschool version is unique when compared to other measures of child life events stress in that the events chosen to be included on the instrument are events which happen specifically to preschool children as opposed to children of any developmental period. The Life Events Record yields the number of life events which have occurred and assigns life change unit scores to reflect readjustment for each of the 30 events on the list. Alternatively to using a total number of life events, a factor analysis has been done on the Coddington Life Events Record and factors which represent qualitatively different types of events are available.

Parents are read the list of events and asked to indicate if this event has occurred in the life of the child. If the answer is yes, the parent is asked how many times that event has occurred and the age(s) of the child at occurrence. Examples of items on the Life Events Record-Preschool Version are: birth of a brother or sister, mother beginning work, loss of job by a parent, and divorce of parent. This can be done orally with the researcher marking the responses when the interview is conducted one-on-one. Responses can be written when interviewing in a group.

The amount of readjustment required for a preschooler on these events was surveyed from a sample of professional workers which included 131 teachers, 25 pediatricians, and 87 mental health workers in academic divisions of child psychiatry. There was high agreement among the sample regarding the average degree of readjustment necessary for each event. The instrument was normed on a sample of 806 preschoolers. The sample was chosen to be a valid cross-section of the population in and around Columbus, Ohio with regard to race and socioeconomic class.

The LER yielded seven factors from an analyses by Sandler and Ramsey (1980) using a group of clinical child psychologists as raters. These factors were Loss, Entrance, Family Troubles, Positive, Physical Harm, Sibling Problems, and Primary Environment Change.

Reliability. The test-retest reliability of the Coddington Life Events Record was conducted with 120 high school football players (Coddington, 1984). The instrument was completed at three months, seven months, and eleven months. While the reliability was inversely related to the length of time between administrations; the correlation coefficients were significant for family event scores, extrafamilial event scores both desirable and undesirable events, and on the total scores for all three occasions and ranged from (.37) to (.69). Evidence of reliability was lacking on younger ages. An internal reliability study for the Coddington Life Events Record-Preschool version was incorporated into a pilot study for this dissertation study and is described later.

The reliability for the factor analysis described above was .69 for the mean ratings over 496 scores on the similarity of events. A matrix was formed and then factor analyzed using principal components. An eigenvalue criterion of 1.00 yielded seven factors which were rotated to a varimax solution and accounted for 63.6% of the total variance. A factor loading criterion of .50 or greater was chosen to select items describing each factor.

Validity. Content validity of the LER has been investigated. The events were drawn from the literature and from work with normal and abnormal children by the author of the test, who is a professor of Psychiatry and Pediatrics at Ohio State University College of Medicine and is Director of the Division of Child Psychiatry. In relation to all possible events which could occur, Coddington (1984) studied the representativeness of a life events list. The LER was given 724 times to 84 fourth graders and their parents (345 times to the children, 379 times to the parents). The children and their parents were asked about other events which may have occurred but were not found on the LER. Of the events reported by the children, 97% were on the LER. Of the events reported by the parents,

eighty-nine percent were on the LER. No other or additional events were recorded in 84% of the administrations to parents with the LER.

The degree to which a test measures theoretical constructs on which it is based is construct validity. Construct validity is determined by test scores being positively correlated with alternative measures of the construct. The LER was compared and discussed by Coddington (1984) to another measure of life events, the Life Event Inventory by Van Houten & Golembiewski (1978) with respect to weighting of events. A high correlation between weights derived by three independent methods supported the validation of the Coddington.

Criterion validity consists of concurrent and predictive validity. The concurrent validity of the LER was examined by the agreement present between parent and child on the fourth grade sample introduced earlier. Coddington remarks that individuals within the same family are expected to report family events in a similar fashion, keeping in mind individual perceptions as a source of error. Coddington's research staff (1984) found the correlations between the LER for the children and their parents to be significant. This held for total scores, familial events, and extrafamilial events. Coddington believes that the younger the child the more agreement will be present between the parent and the child. "Concurrent validity clearly decreases with increasing disparity between ages, or more correctly, with an increasing degree of individuality" (p. 111).

Concurrent validity is also determined by comparing the scores of the test being assessed with some other measure administered at the same time. Sandler and Block (1979) studied inner-city school children (K-3) using the LER scale and found that:

children identified by their teachers as experiencing adjustment problems experienced more stressful events in the preceding year than a matched sample of normal controls. Within a subsample of the school maladjusted group, life stress was also significantly correlated with parent ratings of child adjustment problems. (p. 436)

Using this same sample and same measure of adjustment, Sandler and Ramsey (1980) found the maladaptive group to be significantly different from the controls on the

factors Family Troubles and Entrance events, with the maladaptive group having had significantly more of these events occur. They made the point that if one used social readjustment units it would be difficult to see these relationships because many of the items on the Entrance factor were ambiguous. They concluded, "A more adequate conceptual model of life stress events would need to consider the qualitative properties of the events" (p. 298).

For predictive validity to be demonstrated, the instrument must have the ability to predict the future status of a person. Bradley, Casey, and Wortham (1984) correctly identified 32 out of 46 children as Failure To Thrive (FTT) or normal with a multiple discriminant analysis using the LER-Preschool and the Home Observation for Measurement of the Environment (HOME).

Coddington (1984) used a prospective cohort design on the before mentioned fourth grade population. Variables were the LER during the first grading period, a family supportiveness measure, and a measure of the child's achievement (Comprehensive Tests of Basic Skills-CTBS). The LER scores obtained during the first grading period were as accurate in predicting the development of severe problems throughout the school year as were the child's achievement test scores. The result became highly significant when the cohort with both high stress and low CTBS scores was compared against the others (high stress/high CTBS, low stress/high CTBS, low stress/low CTBS).

The seven factor scores were used in the study. The Coddington Life Events Record-Preschool (LER-P) took about 15 minutes to administer. (see Appendix B for the LER-P)

Parenting Stress

The Parenting Stress Index is a 101 item likert-type instrument designed for parents of young children to assess stress in the parent-child relationship in parent and child domains. The Child Domain measures temperamental characteristics of the child as well as interactive types of variables between parent and child which impact on the personality and

sense of self of the parent. The Parent Domain measures personality and pathology of the parent that contribute to stress in the parent-child relationship.

There are a total of 13 factors with a 6 scale Child Domain and a 7 scale Parent Domain. With regard to the child characteristics, the PSI assesses the temperamental variables of Adaptability, Demandingness, Mood, and Hyperactivity/Distractibility. The interactive variables are Acceptability and Child Reinforces Parent. Parent characteristics are related to the parent's personality and pathology and are measured by the parent's Depression, Sense of Competence in the Parenting Role, and Parental Attachment. In addition are situational variables which are seen as significant contributors to the stress level in the parent-child relationship. These are the parent's Relationship with Spouse or Significant Other, Social Isolation, Parental Health, and Restrictions of the Parenting Role. The thirteen factor scores were used in the study. The PSI took 20-30 minutes to complete.

Parents were asked to think about the target child (in this case their Head Start child.) Parents were instructed to choose answers which best described their feelings on a 1-5 likert type scale from strongly agree, agree, not sure, disagree, to strongly disagree. Example of items from the Child Domain are: My child appears disorganized and is easily distracted, Most times I feel that my child likes me and wants to be close to me. Examples of items from the Parent Domain are: I enjoy being a parent, Since having my child, my spouse (or male/female friend) and I don't spend as much time together as a family as I had expected.

The norm group included 2,633 parents from all socioeconomic levels as well as single parents and unemployed parents (Abidin, 1985). A study by Hastings-Storer (1991) compared the available norms of the PSI with scores of low-income Head Start mothers, yielding further information about this group. The instrument using cutoff scores can categorize parents into high stress (scores above the 80th percentile rank) and normal stress groups (scores between the 15th and 80th percentile rank).

Reliability. The internal reliability of the Parent Domain is (.93), the Child Domain is (.89), and reliability for the Total Stress Score on the PSI is (.95) based on the initial sample of 534 parents. Test-retest reliability has been well demonstrated by several studies, both at three months (Abidin, 1990; Burke, 1978; cited in Abidin; Zakreski, 1983; cited in Abidin, 1990) and one year (Hamilton, 1980; cited in Abidin, 1990).

Validity. The appropriateness of the type of items for content validity was determined by conducting wide literature reviews in childrearing research. From the literature, domains were identified which suggested areas needing to be assessed by the items. Over 95% of the items on the PSI are related directly to research. For example, Abidin used the work of Thomas, Chess, and Birch for temperament; Lazarus for appraisal; Bell, Broussard, Ainsworth, and Moos for parent-child reciprocity; Rahe, Hokems, and Masuda, and Selye for life stress events.

With regard to the completeness of the sample of items, ratings were given as to the relevance of their content by a panel of six professional researchers and clinicians in child development and clinical child psychology (Abidin, 1985). The items were field tested using pilot samples of 208 mothers representing a variety of socioeconomic and educational levels. The mothers were asked for reactions to the items as well as the procedures for completing the PSI. The parent and professional feedback over three revisions was used to choose the format which was most acceptable and easily understood, to revise the instructions, and to make identified changes in the item content.

Factorial validity (a type of construct validity) for the PSI was determined by three factor analyses based on the responses of 534 mothers (one on the Child Domain, one on the Parent Domain, and one on Total-consisting of both the Child and Parent Domain items). On the Child Domain, the 47 items yielded a six factor solution accounting for 41% of the variance. On the Parent Domain, the 54 items yielded a seven factor solution accounting for 44% of the variance. The 13 subscales formed a two factor solution accounting for 58% of the variance.

A replication of factorial validity was conducted using Bermuda mothers as subjects (Hauenstein, Scarr, and Abidin, 1986; cited in Abidin, 1990). Across cultures, the factor structure remained the same as did the reliability of the measure. The sample of Bermuda mothers was different racially, these mothers had significantly lower educational levels, and were more often employed than the American mothers (whose responses were used to do the original factor analyses). This lends support for the validity of the PSI factors for low-income women.

Two major constructs which are in line with the proposed study are development and relationships. With respect to construct validity, the PSI has been found to correlate with Bayley Infant Development Scales at three and six months (Zakreski, 1983; cited in Abidin, 1990). A significant difference between groups based on mothers' stress level (low or high stress) with an orderly decrease in children's Bayley scores from three to six months was observed. Studying relationships Adamakos, Ryan, Ullman, Pascoe, Diaz, and Chessare (1986) found that the PSI was related to the Home Observation for Measurement of the Environment (HOME). The high stress, low support mothers demonstrated less stimulation for their children as measured by the HOME relative to the other three groups (high stress/high support, low stress/low support, low stress/high support).

Concurrent validity (a type of criterion validity) is determined by relating the scores of the test being validated with some other well-known measure of the same criteria, with both measures being given at the same time. Interested in SES, toddler temperament, and parenting stress, Arena (1989) found SES level was related to scores on the Child Domain subscales Demandingness, Mood, Distractibility/Hyperactivity and the Parent Domain subscales Parent Attachment and Sense of Competence. Low SES mothers reported higher levels of stress in relation to the child characteristics.

Zakreski (1983; cited in Abidin, 1990) found that single mothers and mothers of premature infants earned significantly higher scores than married mothers and mothers of

full-term babies. Stress scores for married mothers were significantly lower following three months, while single mothers earned slightly higher scores after three months. All married full-term mothers fell into the low stress level group and all single pre-term mothers fell into the high stress level group.

Krauss, Hauser-Cram, Upshur, and Shonoff (1989; cited in Abidin, 1990) obtained scores on the Family Adaptability and Cohesion Evaluation Scales (FACES) and the Parent Support Scale. Both had a negative correlation with Total Stress on the PSI. Adamakos et al. (1986) found relationships between the PSI and support using the Maternal Social Support Index (MSSI). Low scores on the PSI Parent Domain were related to good social support for the mother. High scores on the PSI Child Domain were associated with low satisfaction in ongoing relationships for the mother.

In developing the Parental Locus of Control Scale (PLOC), Campis, Lyman, and Prentice-Dunn (1986) used the Child Demandingness, Parental Sense of Competence, and Restrictions Caused by Parental Role scales of the PSI as comparison measures. Child Demandingness and Restrictions Caused by Parental Role correlated significantly with the three scales of the PLOC (Child Control, Fate/Chance, Parental Control). Parental Sense of Competence was significantly related to Child Control and Parental Control on the PLOC.

Predictive validity is the other type of criterion validity. Interested in prediction, Prinz, Bella, and Oppenheimer (1983; cited in Abidin, 1990) conducted a study of variables associated with children's school adjustment following the separation and divorce of their parents. The subscale Restrictions of the Parental Role on the PSI was among nine variables which was significantly correlated with maladaptive functioning at school. Finally, Abidin (1990) discussed work by Lafiosca (1981) who correctly identify 100% of the parents of the normal children and 60% of the parents seen at a child development clinic when the ninetieth percentile of the PSI Total Stress Score was used as a cutoff. (see Appendix C for the PSI)

Demographic Variables

The five demographic variables of interest in this study were maternal education level, maternal employment status, maternal marital status, maternal age, and maternal ethnicity. These were measured using information available from Head Start files and asking mothers at the time of data collection if this demographic information was still correct. If yes, this was noted. If no, the correct information was obtained. Some of the information was also elicited on one of the measures (Parenting Stress Index--PSI) which collaborated the accuracy of the demographics.

Maternal education. Head Start measures education with the following categories of grade or level completed: 9th grade or less, 10th grade, 11th grade, 12th grade, some college/training, and college/training graduate. For those parents who had an education of 9th grade or less, I asked them the highest grade they completed in school. For those who have some college/training, college/training graduate; I asked them how many years of schooling they have completed. In addition, there is a question in the Parenting Stress Index which asks what was the highest level in school the parent completed with the categories: 1-8th grade, 9-12th grade, vocational or some college, college graduate, graduate or professional school. The PSI puts an emphasis on education as part of parenting stress.

Maternal employment status. Head Start measures employment status with the following categories: full-time, part-time, seasonal, unemployed, and retired/disabled. Because the majority of parents are either employed as full-time workers or unemployed, these two categories should be sufficient. To do this, full-time, part-time, and seasonal can be combined to define employed while unemployed and retired/disabled can be combined to represent the unemployed category. The mothers were asked at the time of data collection if they had the same employment status as at the time of registration for Head Start.

Maternal marital status. Head Start asks if the child is in a one or two parent home. In addition, the answer sheet of the Parenting Stress Index (PSI) asks for marital status in

an open ended form. While not a part of the score as education is, it is a part of the background information collected when the PSI is administered. The mothers were asked to verify if their marital status was single, never married, divorced, widowed, or married.

Maternal age. Head Start has the birth date of the mothers. Mothers were asked to verify their date of birth.

Ethnicity. Head Start has the ethnicity of the mother. Mothers were asked their ethnicity at the time of the interview. Ethnicity was black, asian and hispanic for minority.

Procedure

Fifty-one randomly selected mothering females (hereafter known as mothers) were contacted by phone call, letter, or home visit from the researcher inviting participation in the study. (see Appendix D for Administration Procedures) Mothers were informed that their voluntary participation in this study was for the purpose of looking at stress on mothers and children and children's learning.

If a phone call or home visit was made, an appointment was made at this time to do the interview. If a letter was used; a self-addressed, stamped envelope was included with a return form to acknowledge mothers' willingness to participate and asking for a possible date, time, and choice of location (home, Family Services Center, or school) to meet. For those who did not return the letter within a reasonable time, a follow-up home visit was conducted. When mothers returned the letter and had agreed to participate, a phone call was made to make or verify an appointment for data collection. If any of the mothers drawn did not express a willingness to participate, they were replaced by random selection.

At the time of the interview, a letter of introduction from the Head Start Alachua County School Board was presented to the parent, showing support for the study from the school system. Informed consent procedures was explained and signed at the time of data collection and presented the purpose of the study, assured confidentiality and group reporting of data, and served as an agreement to participate voluntarily and without pay in

the study, and as a release of records for the child's DIAL-R score. (see Appendix E for Informed Consent)

Mothers were given the opportunity to request information about the study once it was completed by signing a list and giving their mailing address. In addition, mothers were told about services available through the Family Services Center. A schedule of meetings and phone numbers was made available for mothers who participated. Possible services available were workshops on parenting, such as child-rearing and children's behavior; and on stress reduction and management. In addition, information about services to help parents with literacy, employability, and substance abuse was available through the Family Services Center. This information was offered to motivate mothers to participate in the study.

Two stress questionnaires and a demographic data sheet confirming Head Start registration information on maternal educational level, employment status, marital status, age, and ethnicity was completed by the mothers. Time to complete these measures was forty-five minutes to one hour. The pilot study confirmed this and these results are described in the next section. Mothers were asked to complete the Parenting Stress Index (PSI) and the Life Events Record-Preschool Version (LER-P) with the researcher administering the instruments. Since some mothers only had a grade school education and to insure uniformity in administration procedures, the directions to the subjects and the items on the PSI instruments were read by the researcher to all subjects. If a parent took offense to the oral reading, an explanation was given that the test was made to be read aloud, but the parent was encouraged to read it as well. The LER-P is designed for the parent to respond to the list of events and tell the researcher in a yes or no fashion if the event has occurred in the child's life. If the answer was yes, the parent was asked how many times that event had occurred and the ages of the child at occurrence. If the answer was no, the next event was read aloud.

If mothers expressed an interest in doing the interview at the Family Services Center or at the school where their child attended Head Start, an assistant would have been utilized to interact with the children in a separate room, while the interviewing of the mothers took place, but this situation did not arise.

Pilot Study

Two situations arose in the development of this proposal. One was the need to address the lack of reliability on the LER-P measure and the second was to establish a known length of administration for the LER-P and the PSI. To address these issues, a pilot study was conducted and is described here.

Permission to do a pilot study with mothers who attended the Family Services Center was given to me as part of my duties as an evaluator and employee of Alachua County Head Start. Low-income mothers were asked to participate in the pilot study through contacts the researcher had with mothers in the Family Services Center program evaluation study, referrals made to the researcher from the Family Services Center Liaisons drawn from mothers in the Family Services Center program evaluation study, and mothers involved in a parenting class at the Family Services Center. Mothers were informed that their participation in the study was voluntary, without pay, and confidential.

Since the LER-P is an objective measure, it was determined that for those mothers who complete just the LER-P; this interview could take place by telephone or in a group setting. Telephone interviews were scheduled to allow convenience and attention and six mothers were interviewed in this manner. In a group setting eleven mothers were interviewed at one time. A total of 21 mothers completed the LER-P. The additional 51 mothers were interviewed as described above.

A total of 72 subjects were used to produce a Cronbach's alpha coefficient for internal consistency. This is a measure of reliability within a test form based on the item correlation. The coefficient gives the proportion of the variance of a test due to all factors common among the items on the test and illustrates how much of the score on the test

depends upon general and group factors (Cronbach, 1984). To be acceptable, an alpha reliability around (.70) is needed. The reliability coefficient which was obtained on the first 21 mothers was (.74), the coefficient fell just below the (.70) mark at (.67) using all 72 subjects. Possible reasons for a somewhat low coefficient may be due to the fact that Cronbach's Alpha is a reflection of the degree to which items are measuring the same characteristic (Sattler, 1988). As mentioned earlier, the items on the CLER are qualitatively different enough to produce reliable and valid factors. Another problem along these lines with the CLER was pointed out by Johnson (1986) who stated that a major limitation of this measure was that it did not measure positive and negative changes separately. Sattler also discussed the variability of scores impacting reliability. The CLER includes items which happen to almost all children (e.g., beginning school) to events that happen to almost no children (e.g., death of a parent), and this may have contributed to narrowing the spread of scores. Also, with respect to the particular items chosen to be included on the CLER, Coddington and others pointed out that an adequate sampling of life events which are experienced by children may not be provided as the items were chosen by him and rated by professionals as opposed to children and their parents.

Before beginning data collection, four mothers were interviewed in their homes to determine the length of administration for both the LER-P and the PSI. Feedback from these mothers was recorded with respect to administration (e.g., both instruments were read aloud to control for differences in reading levels of mothers). Following is the time needed to complete the interview for the four mothers:

Time Completing Instruments Education Marital Status Employed

54 mins.	8th grade	One parent	No
59 mins.	9th grade	One parent	Yes
32 mins.	12th grade	One parent	No
48 mins.	13th grade	One parent	Yes
Ave. 48.25 mins	10.5 grade	All one parent	50%

With respect to the feedback given by the mothers about the procedure during the interview and administration, mothers did not give any negative feedback concerning the reading of the items by the researcher. With respect to specific items on the questionnaires, the most common question was whether a common-law marriage was considered a marriage in this context. For the purposes of this research if a parent lived a common-law marriage, it was considered a marriage here.

Statistical Analysis

The data were analyzed by multiple regression. The data set included the child's verbal cognitive score from the DIAL-R, the child's life events stress factor scores from the Coddington Life Events Record-Preschool Version, the mother-child relationship parenting stress factor scores from the Parenting Stress Index, and the demographic variables maternal education level based on the mother having a high school education or above or less than a high school education, maternal employment status based on whether the mother was employed or unemployed at the time of data collection, maternal marital status based on whether the mother was married or unmarried, maternal ethnicity as minority or white, and maternal age as continuous.

The data analyses stages used the equations below. To test hypothesis 1, the total R² was computed for equation 1 on the variables; child verbal cognitive functioning, child life events stress, parent-child relationship stress, the maternal demographic variables of education level, employment status, marital status, age, and ethnicity. Zero order correlations among all variables were available from equation 1. In this equation, the dependent variable was child verbal cognitive functioning. The independent variables were child life events stress, parent-child relationship stress, and the maternal demographic variables of education level, employment status, marital status, age, and ethnicity.

To test hypotheses 2 and 3, equation 1 was also used, with t scores used to determine significance and direction. These partial correlations were after the variance of all other variables in the model had been accounted for. To test hypotheses 4 and 5,

equation 2 was used, following the same procedure as for testing hypotheses 2 and 3. In equation 2, the dependent variable was child life events stress. The independent variables were parent-child relationship stress and the five maternal demographic variables. To test hypothesis 6, equation 3 was used. In this equation, the dependent variable was parenting stress and the independent variables were child life events stress, maternal educational level, employment status, marital status, age, and ethnicity. The partial correlations were used to determine significance and direction.

Equation 1

Y = Total score (Language and Concepts) on the DIAL-R

X1 = Factor scores on the Child Life Events Record

X2 = Factor scores on the Parenting Stress Index

X3 = Education level of the mother (1 = high sch/above, 0 = below high sch)

X4 = Employment status of the mother (1 = yes, 0 = no)

X5 = Marital status of the mother (1 = yes, 0 = no)

X6 = Age of the mother

X7 = Ethnicity (1 = minority, 0 = white)

Equation 2

Y = Factor scores on the Child Life Events Record

X1 = Factor scores on the Parenting Stress Index

X2 = Educational level of the mother (1 = high sch/above, 0 = below high sch)

X3 = Employment status of the mother (1 = yes, 0 = no)

X4 = Marital status of the mother (1 = yes, 0 = no)

X5 = Age of the mother

X6 = Ethnicity (1 = minority, 0 = white)

Equation 3

Y = Factor scores on the Parenting Stress Index

X1 = Factor scores on the Child Life Events Record

X2 = Educational level of the mother (1 = high sch/above, 0 = below high sch)

X3 = Employment status of the mother (1 = yes, 0 = no)

X4 = Marital status of the mother (1 = yes, 0 = no)

X5 = Age of the mother

X6 = Ethnicity (1 = minority, 0 = white)

CHAPTER 4 RESULTS

Purpose

The purpose of this study was to investigate the relationships between child verbal cognitive functioning, child life events stress, parent-child relationship stress, and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age in low-income Head Start families with preschoolers.

Child verbal cognitive functioning was measured by means of one score on the DIAL-R that represented the learning of language and concepts. Child life events stress were assessed by means of seven factor scores on the Child Life Events Record, namely: Loss, Entrance, Family Troubles, Positive, Physical Harm, Sibling Problems, and Primary Environment Change, with respect to the number of these events occurring from birth until approximately age 5 in a child's life. Parent-child relationship stress was represented by five Likert-type responses with respect to 13 Parenting Stress Index factor scores consisting of Adaptability, Acceptability, Demandingness, Mood, Distractibility, Child Reinforces Parent, Depression, Attachment, Restriction of Role, Sense of Competence, Social Isolation, Relationship with Spouse, and Health. These 13 scores may be further grouped for purposes of analyses and discussion into the following four categories: (1) Child Temperament factors (Adaptability, Demandingness, Mood, and Distractability); (2) Child Interactive factors (Acceptability and Child Reinforces Parent); (3) Parent Personality/Pathology factors (Depression, Attachment, and Sense of Competence); and (4) Parent Situational factors (Restriction of Role, Social Isolation, Relationship with Spouse, and Health). These four categories can be grouped into a Child Characteristics Domain (Child Temperament factors and Child Interactive factors) and a Parent Characteristics Domain (Parent Personality/Pathology and Parent Situational). As an aid in

interpreting findings, a more complete description of the defining features and characteristics of the Child Life Events Record factors and the Parenting Stress Index factors are given in the discussion below.

The maternal demographic variables measured were education level, marital status, employment status, age, and ethnicity. The demographic variable maternal education level was dummy coded into two groups: high school education or above (1) and below high school education (0). Maternal marital status was dummy coded into two groups: married (1) and unmarried (0). Maternal employment status was dummy coded into two groups: employed (1) and unemployed (0). Ethnicity was dummy coded into two groups: minority, i.e., African-American, Hispanic, or Asian (1) and White (0). Maternal age was continuous.

The means and standard deviations of the variables measured in this study are shown in Table 1.

A total of 51 mothers were interviewed. During the data collection procedure, a process which involved interviewing 51 mothers, 12 of the randomly selected subjects were not interviewed for the following reasons: six declined saying they were not interested, three were unable to be contacted, one was incarcerated, one had moved to another county, and one made repeated appointments but did not keep them. These subjects were replaced using random selection. Therefore, 77% of the randomly selected subjects did participate and 23% did not participate. Of these 51 subjects, the DIAL-R scores of two children could not be located by the school system, therefore data analyses included 49 subjects. Of the total sample of 49 mothers, 51% had a high school education or above, 41% were married, 51% were employed, 71% were minority, and the average age of mothers was 29 years.

Table 1--Means and Standard Deviations of All Variables

<u>Source</u>	<u>Mean</u>	<u>SD</u>
DIAL-R Verbal Cognitive Functioning	39.89	11.26
<u>Maternal Demographics</u>		
Maternal Education Level	.51	.51
Maternal Marital Status	.41	.50
Maternal Employment Status	.51	.51
Maternal Ethnicity	.71	.46
Maternal Age	28.92	5.58
<u>Source</u>	<u>Mean</u>	<u>SD</u>
<u>Child Life Events Record Factors</u>		
Loss	1.22	1.57
Entrance	1.16	1.14
Family Troubles	1.79	1.84
Positive	1.77	1.45
Physical Harm	.29	.58
Sibling Problems	.24	.72
Primary Environment Change	2.88	1.27
<u>Parenting Stress Index Factors</u>	<u>Mean</u>	<u>SD</u>
Child Adaptability	26.84	6.14
Child Acceptability	13.35	4.12
Child Demandingness	20.08	5.07
Child Mood	11.14	3.10
Child Distractibility	24.84	4.58
Child Reinforces Parent	10.27	3.58
Parent Depression	20.43	5.55
Parent Attachment	13.22	3.96
Parent Restriction of Role	20.04	5.80
Parent Sense of Competence	29.73	7.11
Parent Social Isolation	13.51	4.89
Parent Relationship with Spouse	19.39	4.93
Parent Health	13.08	3.77

Tests of the Hypotheses

Six hypotheses were tested using multiple regression analyses. In addition, there were methodological issues which had an impact on the analyses. One issue concerned the fact that both the CLER and PSI yield total scores but the individual factor scores on these instruments can have a positive or negative correlation with a given variable. Using the total score can obscure existing relationships with the factors. Therefore, for the purpose of this study the individual factor scores of the CLER and the PSI were used as variables, rather than the total scores.

A second issue concerned the fact that there were a total of twenty factors between the Child Life Events Record (CLER) and the Parenting Stress Index (PSI). The relationships involving these two measures were assessed using stepwise multiple regression and minimum R square method to reduce the number of factor variables in a given model. Multiple regression analyses were then performed with entry of the particular Child Life Events Record factors and Parenting Stress Index factors determined by the results of models previously generated by stepwise regression, with all the maternal demographic variables included in each model for hypotheses 2 through 6.

One further issue revolved around the fact that since the factors on the Parenting Stress Index were correlated with one another (see Table 2), stepwise regression at times generated models with very similar R2's, but with different Parenting Stress Index factors as independent variables. This came up only in relationships between the CLER and the PSI. Therefore, when each factor of the Child Life Events Record was used as a dependent variable, more than one model is at times presented to capture the full nature of relationships between the Child Life Events Record and the Parenting Stress Index factors (after having been subjected to multiple regression in which all five maternal demographics were included in all models).

Table 2-Intercorrelations Of Parent-Child Relationship Stress (Parenting Stress Index)
Factors

	Adapt	Accept	Demand	Mood	Distr	Reinf	Depr	Attach	Restr	Sense	SocIsol	RelSpou	ParHlth
Adapt	.59	.64	.50	.42	.61	.39	.33	.13	.35	.12	.35	.04	
Accept	----	.57	.44	.52	.78	.52	.39	.16	.49	.18	.35	.17	
Demand	----	----	.39	.47	.50	.51	.45	.45	.53	.39	.51	.28	
Mood	----	----	----	.26	.45	.40	.28	.05	.26	.23	.22	.32	
Distr	----	----	----	.44	.32	.37	.23	.23	.46	.20	.34	.10	
Reinf	----	----	----	----	.37	.55	.20	.55	.55	.19	.43	.16	
Depr	----	----	----	----	----	.43	.50	.62	.53	.53	.53	.35	
Attach	----	----	----	----	----	----	.40	.56	.48	.45	.20		
Restr	----	----	----	----	----	----	----	.59	.74	.57	.46		
Sense	----	----	----	----	----	----	----	----	.71	.68	.46		
SocIsol	----	----	----	----	----	----	----	----	----	.63	.55		
RelSpou	----	----	----	----	----	----	----	----	----	.34			
ParHlth	----	----	----	----	----	----	----	----	----	----	----		

Note.

$t = > .52$; $p < .0001$.
 $t = > .52$; $p < .001$.
 $t = > .51$; $p < .001$.
 $t = > .44$; $p < .01$.
 $t = > .35$; $p < .01$.
 $t = > .35$; $p < .01$.
 $t = > .28$; $p < .05$.
 $t = > .28$; $p < .05$.

The criteria for accepting or rejecting the hypotheses was as follows: for hypothesis 1 it was based on whether the overall model was statistically significant; and for hypotheses 2-6 if the number of possible multiple regression relationships that were significant was over 50% the hypothesis was accepted and if less than 50% the hypothesis was rejected.

The first hypothesis examined the overall model for the DIAL-R, the factors on the CLER, PSI, and the maternal demographic variables.

Hypothesis 1--Overall Model

Hypothesis 1 stated that there will be a significant relationship between child verbal cognitive functioning, child life events stress, parent-child relationship stress, and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age. To test hypothesis 1, the overall F value for the model shown in Table 3 was used. The DIAL-R was the dependent variable. The overall model was significant, $F = 3.77$, $p = .002$. The R Square value for this model was .44. Therefore hypothesis 1 was accepted.

Zero-order Pearson Correlation Coefficients were also calculated. This analysis revealed the following significant correlations among the variables (see Appendix F for the complete correlation matrix).

Relationships between stress measures. There were 3 relationships between the CLER factors and the PSI factors. Specifically, there was a significant relationship between the CLER factor of Loss and the PSI factor of Child Temperament Distractibility, $r = -.29$; $p = .04$. More Loss Events (the permanent or temporary loss of a significant other) experienced by the child was related to the child being reported as less distractible by his/her mother, meaning mostly that the child was less physically active. A significant relationship between the CLER factor of Sibling Problems and the PSI factor of Child Temperament Adaptability, $r = .32$; $p = .02$, was found. More Sibling Problems Events experienced, in which attention is given to brothers and sisters, was related to more problems with adaptability being reported, in that there is a difficulty for the child in

Table 3-Relationships between DIAL-R and Child Life Events Record Factors , Parenting Stress Index Factors, and Maternal Demographic Variables

Source	b	t	p
Entrance Events	2.97	1.98*	.05
Child Acceptability	-.88	- 2.42*	.02
Parent Depression	.55	2.07*	.05
Maternal Education Level	1.97	.67	.51
Maternal Marital Status	-.16	-.05	.96
Maternal Employment Status	6.29	2.07*	.04
Maternal Ethnicity	4.42	1.24	.22
Maternal Age	1.00	3.38**	.002

Note. Error df = 40.

* $p < .05$. ** $p < .01$.

handling changes and transitions. Sibling Problems were also significantly related to the PSI factor of Child Temperament Demandingness, $t = .35$; $p = .01$. Reports of the child as being more demanding by placing direct pressure on the mother were related to more Sibling Problems Events.

Relationships between child verbal cognitive functioning, stress measures, and demographics. There was a significant relationship between the DIAL-R (child verbal cognitive functioning) and maternal age, $t = .39$; $p = .006$. As maternal age increased, the child's verbal cognitive functioning score increased. Several factors on the Child Life Events Record were also related to maternal demographic variables, with five zero-order correlations being significant. Specifically, CLER Loss Events was significantly related to maternal marital status, $t = -.28$; $p = .05$, where the number of Loss Events, such as divorce or separation, was higher in families where the mother was unmarried. The CLER factor Entrance Events was also related to maternal marital status, $t = .39$; $p = .005$. In this case, the number of Entrance Events (the addition of a third person to the family, e.g., stepfather or sibling) was higher in families where the mother was married. CLER Family

Troubles Events was related to maternal ethnicity, $r = -.59$; $p = .0001$, where being a White mother was related to having a child with a higher number of Family Troubles (events that correlate with how trouble in the family impacts on the child). There was a significant relationship between CLER Positive Events and maternal employment status, $r = .30$; $p = .03$, where a higher number of Positive Events (socially desirable events) were experienced in families where the mother was employed. CLER Primary Environment Change Events was significantly related to maternal education level, $r = .33$; $p = .02$. Here, being a mother with at least a high school education was related to a higher number of Primary Environment Change Events (involving the child having to adjust to a change in primary socialization environments, such as mother beginning work and/or the child beginning school).

Relationships between demographics. There were 3 statistically significant relationships found between certain maternal demographic variables. Marital status and ethnicity were significantly related, $r = -.30$; $p = .03$, with more white mothers married. Marital status and age were significantly related, $r = .31$; $p = .03$. As maternal age increased, the number of mothers who were married increased. Ethnicity and age were significantly related, $r = -.31$; $p = .03$, with white mothers being older.

Summary for hypothesis 1. To summarize Hypothesis 1, the overall model with the DIAL-R as the dependent variable was significant at the .002 alpha level. This model accounted for 44 percent of the variance of the DIAL-R score. Most of the significant zero-order correlations involved relationships with the maternal demographic variables but there were significant relationships present between the two stress measures (Child Life Events Record and Parenting Stress Index). All of these between the stress measures involved Child Characteristics Stress factors on the Parenting Stress Index, and two of the three relationships involved the Sibling Problems factor with respect to the Child Life Events Record. The DIAL-R (child verbal cognitive functioning) was related to the maternal demographic variable age, as well as several significant relationships present between the

Child Life Events Record factors and the maternal demographic variables. Three of the maternal demographic variables were correlated with one another (i.e., marital status, ethnicity, and age). While zero-order correlations can sometimes change when multiple regression analysis is applied, even though there were not a large number of significant zero-order correlations, those that did emerge appeared to be solid as all of them held in the following multiple regression models.

The next two hypotheses examined the relationships between child verbal cognitive functioning and stress, and child verbal cognitive functioning and the maternal demographic variables. For the models applied throughout the remainder of the paper the following confidence levels were used: * = $p < .05$, ** = $p < .01$, *** = $p < .001$, **** = $p < .0001$.

Hypothesis 2--Child Verbal Cognitive Functioning

Hypothesis 2 stated there will be a significant relationship between child verbal cognitive functioning, child life events stress, and parent-child relationship stress; after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age. There was a significant relationship between child verbal cognitive functioning, one factor (out of seven) on the child life events stress measure, and two factors (out of thirteen) on the parent-child relationship stress measure.

To test hypothesis 2, stepwise regression was used to generate a model which best represented the relationships between the DIAL-R (child verbal cognitive functioning), the Child Life Events Record (CLER), and the Parenting Stress Index (PSI). Stepwise regression reduced the large number of factors present on the CLER and the PSI to one model. The factor of Entrance on the CLER and the factors of Child Interactive Acceptability and Parent Personality/Pathology Depression on the PSI were significantly related to the DIAL-R. Next, multiple regression confirmed that these relationships were still significant after controlling for the effects of the five maternal demographic variables.

Of the 3 possible multiple regression relationships, all 3 or 100 percent were significant. Therefore, hypothesis 2 was accepted. The defining features of these factors and a discussion of the relationships between the variables of interest in hypothesis 2 follows Table 3, which shows the multiple regression model.

A higher number of Entrance Events on the CLER was related to higher DIAL-R scores (child verbal cognitive functioning). The entrance or addition of a new person(s) to the family, such as a stepfather, grandparent, third adult, or new sibling was related to higher verbal cognitive functioning scores for the child. While a new baby was one of the items on the Entrance factor, many of the items on this factor were with respect to an adult coming into the home and family. For example, these adults may have been motivated to do activities with the child that fostered cognitive functioning, such as reading, talking, or taking the child into the community to gain experiences, in addition to what the mother alone could do.

With respect to the Parenting Stress Index factors, less Child Interactive Acceptability Stress was related to higher child verbal cognitive functioning scores. The Child Acceptability factor is interactive between child and parent, "involving impacts on the parents' personality and sense of self" (Abidin, 1990, p. 7). When the child was acceptable to the mother in terms of being closer to the mothers' idealized or hoped for child in terms of intellectual, emotional, and physical characteristics this was related to higher child verbal cognitive functioning scores. When the child was acceptable to the mother she may have, for example, been more positive in her approach to the child, her ratio of praise to criticism may have been higher, and the child may have more motivation to do well in school and cognitive tasks to keep this praise coming.

Mothers' reports of feeling some depression on the PSI were related to higher child verbal cognitive functioning scores, although this relationship was a bit weaker than the relationship between the PSI factor of Child Interactive Acceptability and the DIAL-R. The Personality/Pathology Depression factor indicated that the parent was experiencing some

trouble with emotional availability and physical energy. However, with respect to Parent Depression, Abidin (1990) notes that "there are some items on this subscale relating to guilt and unhappy feelings which, while often associated with depression, may be responded to primarily out of dissatisfaction with self and life circumstances and may not signal clinically significant depression" (p. 62). In support of this assumption, the mean group score on this factor was below the cutoff point Abidin reported is indicative of clinical depression and a need for intervention. With a low-income population such as this sample, parents may have been unhappy with the present plight of their family and sent the message that the child must work hard and have a good education to be more successful. In fact, the demographic variable of poverty is considered a chronic stressor. Another example may be that, with the Entrance event of the birth of a new sibling, postpartum depression could have been operating with respect to higher depression scores. This type of depression is not usually of a long duration and may actually have had at least a short-term positive impact on the child. The other adults in the family, such as the stepfather or grandmother, may have taken up more than their usual amount of attention with the child to offset his/her feelings of rejection and the lack of interaction between the mother and her preschooler due to the demands of a new baby.

Summary for hypothesis 2. To summarize Hypothesis 2, there were significant relationships between the DIAL-R, the Child Life Events Record factor of Entrance, and the Parenting Stress Index factors of Child Temperament Acceptability and Parent Personality/Pathology Depression, after controlling for education, marital status, employment status, ethnicity, and age. Higher child verbal cognitive functioning was associated with important others coming into the family, the child being acceptable to the mother in terms of intellect and behavior, the mother being somewhat depressed and dissatisfied with the conditions under which she must raise her child, being an older mother, and being a mother who works outside of the home.

Hypothesis 3--Demographics and Child Verbal Cognitive Functioning

Hypothesis 3 stated that there will be a significant relationship between child verbal cognitive functioning and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age, after controlling for child life events stress and parent-child relationship stress. The same model used to test Hypothesis 2 was used to test Hypothesis 3. Significant relationships were not found between the DIAL-R and three of the five maternal demographic variables: namely education level, marital status, and ethnicity, after controlling for child life events and parent-child relationship stress. Significant relationships were found between the DIAL-R and two of the five maternal demographic variables of employment status and age, with higher DIAL-R scores being related to mothers being employed and older; after controlling for child life events stress and parent-child relationship stress. Of the five possible relationships (5 demographics x the DIAL-R score), 2 were significant. Therefore, 40 percent of the possible number of relationships which could have been significant were and thus, hypothesis 3 was not accepted. These relationships are shown above in Table 3.

Summary for hypothesis 3. To reiterate, being an employed mother was related to higher child verbal cognitive functioning scores and as maternal age increased child verbal cognitive functioning scores increased. The education level, marital status, and ethnicity of the mother were not related to child verbal cognitive functioning.

The next three hypotheses address the relationships between child life events stress and parent-child relationship stress, child life events stress and the maternal demographics, and parent-child relationship stress and the maternal demographics.

Hypothesis 4--Parenting and Child Life Events Stress

Hypothesis 4 stated there will be a significant relationship between child life events stress and parent-child relationship stress, after controlling for the maternal demographic variables of education level, marital status, employment status, ethnicity, and age. Six of the seven factors of the child life events stress measure were related to eleven out of the

thirteen factors on the parent-child relationship stress measure. Based on minimum R square regression across the 13 models generated for the 7 CLER factors, 26 relationships were present with the PSI. After multiple regression in which the variance of the five demographic variables was accounted for, 21 of these 26 were significant. Therefore, since 81% of the multiple regression relationships were significant, hypothesis 4 was accepted.

To test Hypothesis 4, as mentioned earlier, each factor of the Child Life Events Record (CLER) was entered into a separate stepwise regression as the dependent measure for the purposes of both reducing the number of independent Parenting Stress Index (PSI) factor variables and to determine the number of models needed to describe the relationship between the CLER and the PSI. In some cases, more than one model generated significant relationships between the CLER factors as a dependent variable and the PSI factors as independent variables due to the correlations between the PSI factors. In these instances, the amount of variance accounted for was very similar between models, so that one model could not be said to be "better" than another; rather the models had different PSI factors as significant predictors of the individual CLER factors.

As was done in Hypotheses 2 and 3, multiple regression including all the demographic variables was then used to confirm these relationships between the Child Life Events Record factors and the factors on the Parenting Stress Index. The results are presented below, separately under each factor of the CLER (Loss, Entrance, Family Troubles, Positive, Physical Harm, Sibling Troubles, and Primary Environment Change). The relationships between the PSI factors and each individual factor of the CLER are named, a table(s) with the multiple regression model(s) is shown, and then a discussion of the direction of the relationships and the meanings of the both the CLER factors and the PSI factors are presented under the heading of each factor of the CLER (as the CLER factors were the dependent variables in Hypothesis 4). After all the CLER factors have been presented, a summary of the significant findings for Hypothesis 4 is given.

CLER Loss Events. Stepwise regression generated two models which both represented significant relationships between the CLER factor of Loss Events and PSI factors. Multiple regression confirmed a significant relationship between the PSI factors of Child Temperament Distractibility Stress, Parent Personality/Pathology Depression Stress and the CLER Loss Events factor in one model and between Child Interactive Child Reinforces Parent Stress, Parent Situational Social Isolation Stress and CLER Loss Events factor in another model. These two models, both of which accounted for a similar amount of variance, are shown in Table 4.

Loss Events were represented by the items death of a parent, divorce of parents, marital separation of parents, death of a brother or sister, death of child's close friend, serious illness or accident requiring hospitalization of parent, and/or death of a grandparent. This factor involves the temporary or permanent loss of a significant other in the child's life. The following discussion looks across both models.

A higher number of CLER Loss Events were related to lower stress in some of the PSI factors and higher stress in other PSI factors. A significant relationship was present between lower PSI Child Temperament Distractibility Stress and a higher number of CLER Loss Events. Reports of the child being less hyperactive and restless were related to more Loss Events experienced by the child, so that the child was less physically active when he had lost important people in his life. There was a significant relationship between lower PSI Child Interactive Child Reinforces Parent Stress and a higher number of CLER Loss Events. Mothers reported a more positive affective and reinforcing response to the child when the child had experienced losing significant others. This might reflect for example that the mother was comforting the child or that the relationship with the child was more important to the mother than previously as the loss of significant others to the child means the mother had also lost a significant other. Another possibility is that if the loss was due to separation or divorce following a troubled marriage, the mother may have had an opportunity to concentrate more fully on her relationship with her child.

Table 4- Relationships between Child Life Events Loss Factor and Parenting Stress Index Factors and Maternal Demographic Variables

Model A

Source	b	t	p
PSI Child Distractibility	-.13	-2.89**	.006
PSI Parent Depression	.10	2.69**	.01
Maternal Education Level	-.12	-.29	.76
Maternal Marital Status	-1.37	-3.16**	.003
Maternal Employment Status	-.28	-.68	.50
Maternal Ethnicity	-.96	-1.99*	.05
Maternal Age	.03	.88	.39

Model B

Source	b	t	p
PSI Child Reinforces Parent	-.12	-2.14*	.04
PSI Parent Social Isolation	.10	2.30*	.03
Maternal Education Level	.01	.02	.98
Maternal Marital Status	-1.40	-3.07**	.004
Maternal Employment Status	-.37	-.88	.39
Maternal Ethnicity	-.97	-1.91	.06
Maternal Age	.05	1.21	.23

Note. Error df = 41.

A significant relationship was found between higher PSI Parent Personality/Pathology Depression Stress and a higher number of CLER Loss Events. Mothers' responses of higher feelings of depression in the parent-child relationship, reflecting that emotional and physical energy are impaired and guilt is present, were related to a higher number of Loss Events experienced by the child. For example, loss is often followed by depression, and if the loss was a result of separation or divorce, the mother may have felt guilty about the father no longer being in the home with the child. Higher PSI Parent Situational Social Isolation Stress was significantly related to a higher number of CLER Loss Events. More social isolation and lack of availability of social support for the parenting role felt by the mother was related to a higher number of Loss Events. With

the father gone due to separation or divorce, the mother may have been less active socially, both as a result of not having an adult partner to interact with as well as being unable to attend social functions because the father was no longer available to keep the child while mother went out. In addition, there may have been a lack of social support from work, since the mother may have had to ask for more time off to care for the child and the father was no longer there to share this responsibility. This lack of opportunity for socializing or childcare during work could also have resulted from the loss by death of the child's grandparent(s).

To summarize the relationships between Child Life Loss Events and the Parenting Stress Index factors; lower Child Temperament Distractability Stress, lower Child Interactive Child Reinforces Parent Stress, higher Parent Pathology/Personality Depression Stress, and higher Parent Situational Social Isolation Stress were related to a higher number of Child Life Loss Events. In other words, children were less active and mothers more depressed when loss of an important person in the family occurred. While the mother was more socially isolated from adults, she gained more reinforcement from her child under these circumstances.

CLER Entrance Events. Stepwise regression yielded one model which reduced the large number of PSI factors and best represented a significant relationship between the PSI and the CLER factor of Entrance Events. Multiple regression confirmed a significant relationship between the PSI factor of Parent Situational Restriction of Role and CLER Entrance Events. Higher PSI Parent Restriction of Role Stress was related to a higher number of Child Life Entrance Events, shown in Table 5.

Entrance Events were represented by items about the birth of a sibling, addition of a third adult to family (grandparent, relative, etc.), and/or marriage of parent to stepparent. This factor reflects the addition of new elements to the social field of the child. There was a relationship between the mother experiencing more feelings of Parent Situational

Table 5-Relationships between Child Live Events Entrance Factor and Parenting Stress Index Factors and Maternal Demographic Variables

Source	b	t	p
PSI Child Mood	.07	1.32	.19
PSI Parent Restriction of Role	.07	2.22*	.03
PSI Parent Depression	-.05	-1.60	.12
PSI Parent Health	-.06	-1.35	.18
Maternal Education Level	.18	.59	.56
Maternal Marital Status	.82	2.63**	.01
Maternal Employment Status	-.69	-2.35*	.02
Maternal Ethnicity	-.75	-2.19*	.03
Maternal Age	-.07	-2.31*	.03

Note. Error df = 39.

Restriction of Role Stress, in which the parent feels the negative impact and sense of resentment associated with a perception of loss of important life roles, and the entrance/addition of new person(s) to the family. When the mother married or had a new child for example, she may have felt homemaking had interfered with or preempted a career for her.

CLER Family Troubles Events. Stepwise regression reduced the number of PSI variables and generated three models with very similar R2s but with different PSI factors which had significant relationships with the CLER factor of Family Troubles Events. Multiple regression confirmed that a significant relationship between the PSI factors of Parent Personality/Pathology Attachment Stress, Parent Personality/Pathology Sense of Competence Stress, Parent Situational Health and CLER Family Troubles in one model was present. PSI Parent Situational Restriction of Role Stress was significantly related to CLER Family Troubles in one model, and a significant relationship was present between PSI Parent Situational Social Isolation Stress and CLER Family Troubles Events in one model. The three models are shown in Table 6.

Family Troubles Events were represented by the items loss of job by parent, increase in number of arguments between parents, and/or parent arrested. These factors reflected the process by which family troubles are seen to affect the child. In some cases a higher number of Family Troubles Events were related to lower stress on the PSI factors and in other cases to higher stress on the PSI factors.

Looking across the models, there was a relationship between mothers' reports of higher Parent Personality/Pathology Sense of Competence Stress, which was related to a lack of practical child development knowledge or child management skills as well as not finding the parenting role as reinforcing as expected, and a higher number of CLER Family Troubles Events. For example, when there was arguing in the home, the mothers' sense of competence about being able to have a peaceful family may have been under attack. Higher PSI Parent Situational Restriction of Role Stress, where mothers see themselves as being dominated and controlled by the child's needs and demands often coupled with resentment and anger toward the child and/or spouse, was related to a higher number of CLER Family Troubles Events. If the mother did not have other roles outside of being a mother and wife (which may be likely as job loss is an event of the Family Troubles factor) and things were not going well, she may have been particularly vulnerable to stress related to being a parent and homemaker in a family when this was her main role. Higher PSI Parent Situational Social Isolation Stress, which is related to a relationship with one's spouse which is distant and lacking in support for efforts as a parent, was related to a higher number of CLER Family Troubles Events. For example, if there was arguing and conflict with regard to issues such as job loss, the mother may not have felt close to her spouse, as well as not having the social contact with others in a workplace.

Table 6--Relationships between Child Live Events Factor Family Troubles and Parenting Stress Index Factors and Maternal Demographic Variables

Model A

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
PSI Parent Attachment	-.14	-2.28*	.03
PSI Parent Sense Competence	.09	2.17*	.04
PSI Parent Social Isolation	.12	1.97	.06
PSI Parent Health	-.13	-2.14*	.04
Maternal Education Level	1.02	2.47*	.02
Maternal Marital Status	.10	.21	.83
Maternal Employment Status	.02	.06	.95
Maternal Ethnicity	-2.59	-5.34****	.0001
Maternal Age	-.02	-.60	.55

Model B

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
PSI Parent Restriction of Role	.09	2.44*	.02
Maternal Education Level	1.01	2.30*	.03
Maternal Marital Status	-.32	-.69	.49
Maternal Employment Status	-.21	-.48	.63
Maternal Ethnicity	-2.62	-5.26****	.0001
Maternal Age	.01	.21	.83

Model C

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
PSI Parent Social Isolation	.11	2.68**	.01
Maternal Education Level	1.15	2.62**	.01
Maternal Marital Status	-.36	-.79	.44
Maternal Employment Status	-.12	-.29	.77
Maternal Ethnicity	2.91	-5.74****	.0001
Maternal Age	-.02	-.43	.67

Note. Model A Error df = 39 Model B and C Error df = 42.

A relationship was present between PSI Parent Situational Health Stress and CLER Family Troubles Events, with fewer problems being reported by mothers in terms of their health in relation to a higher number of Family Troubles Events. Lower PSI Parent Personality/Pathology Attachment Stress was related to a higher number of CLER Family

Troubles Events. Mothers may react to negative events happening to the family unit with an awareness that the child feels uncertain of how she feels about him/her and are therefore more motivated in their attempts to fulfill the role of parent, a reflection of lower stress with respect to attachment.

To summarize the relationships between Child Life Family Troubles Events and the Parenting Stress Index, higher Parent Personality/Pathology Sense of Competence Stress, higher Parent Situational Restriction of Role Stress, higher Parent Situational Social Isolation Stress, lower Parent Personality/Pathology Attachment Stress, and lower Parent Situational Health Stress were related to a higher number of Child Life Family Troubles Events. When there was more conflict and trouble in the family, mothers reported that they felt more restricted due to their role as a parent, less competent as a parent, more socially isolated, but better attached to their child and in better health themselves. If the mother does not have other roles outside of being a mother and wife (which may be likely as job loss is an event of the Family Troubles factor) and things are not going well, she may be particularly vulnerable to stress related to being a parent and homemaker in a family when this is her main role. For example, when there was arguing in the home, the mothers' sense of competence about being able to have a peaceful family may have been under attack. Under these circumstances of Family Troubles, mothers felt socially isolated. With arguing and conflict with regard to issues such as job loss, the mother may not have felt close to her spouse, as well as not having the social contact with others in a workplace. Mothers may react to negative events happening to the family unit with an awareness that the child feels uncertain of how she feels about him/her and may therefore be more motivated in their attempts to fulfill the role of parent, a reflection of lower stress with respect to attachment.

CLER Positive Events. There were no significant relationships found between the Parenting Stress Index factors and Child Life Positive Events, as shown in Table 7. This

Table 7- Relationships between Child Life Events Factor Positive Events and Parenting Stress Index Factors and Maternal Demographic Variables

Source	b	t	p
Maternal Education	-.45	-1.02	.31
Maternal Marital Status	.32	.69	.49
Maternal Employment Status	1.08	2.48*	.02
Maternal Ethnicity	.31	.61	.54
Maternal Age	.05	1.14	.26

Note. Error df = 43.

may be due to the fact that more relationships are usually found between events which are negative or ambiguous and other indices of stress than in relationship to positive events.

CLER Physical Harm Events. One model was generated by stepwise regression, and multiple regression supported a significant relationship between the Parenting Stress Index factors of Child Temperament Demandingness Stress, Child Temperament Distractibility Stress, Parent Personality/Pathology Attachment Stress and Child Life Physical Harm Events. These relationships are shown below in Table 8.

Table 8-- Relationships between Child Life Events Factor Physical Harm and Parenting Stress Index Factors and Maternal Demographic Variables

Source	b	t	p
PSI Child Demandingness	.06	2.93**	.01
PSI Child Distractibility	-.05	-2.37*	.02
PSI Parent Attachment	-.05	-2.02*	.05
PSI Parent Health	.03	1.33	.19
Maternal Education Level	-.05	-.30	.76
Maternal Marital Status	-.05	-.27	.79
Maternal Employment Status	.24	1.47	.15
Maternal Ethnicity	-.06	-.30	.76
Maternal Age	-.005	-.30	.77

Note. Error df= 39.

Physical Harm events were represented by the items child acquired a physical deformity, and/or serious illness or accident requiring hospitalization of child. This factor reflects Physical Harm occurring to the child. A higher number of Physical Harm Events were related to both higher and lower stress on the PSI factors.

PSI Child Temperament Demandingness Stress was related to CLER Physical Harm Events in that more demands for service and attention made by the child were related to a higher number of Physical Harm Events being experienced by the child. For example, when ill or injured the child probably did need more attention as well as not being able to do tasks for him/herself which he previously or usually could. These demands may come in the form of crying, physically hanging on the parent, and/or requests for frequent help.

Lower PSI Child Temperament Distractibility Stress was related to a higher number of Child Life Physical Harm Events with more reports by the mother that the child was less distractible and overactive as the number of Physical Harm Events rose. If the child was ill or has been injured, he/she would not physically be able to be as active. Lower PSI Parent Personality/Pathology Attachment Stress was related to a higher number of Child Life Physical Harm Events. This is a reflection that a warm pattern of mother-child interaction and a sense of emotional closeness and bonding between mother and child was operating in relation to more Physical Harm Events having been experienced by the child. The mother for example, was probably more concerned for and about the child under these serious medical conditions.

To summarize the relationship between Child Life Physical Harm Events and the Parenting Stress Index factors, higher Child Temperament Demandingness Stress, lower Child Temperament Distractibility Stress, and lower Parent Pathology/Personality Attachment Stress were related to a higher number of Child Life Physical Harm Events. Children were more demanding but less active and mothers expressed deeper feelings of attachment when the child had endured a physical illness or injury.

CLER Sibling Problems Events. Stepwise regression generated two models confirmed by multiple regression which showed there was a significant relationship between the Parenting Stress Index factors of Child Temperament Adaptability Stress and Child Temperament Demandingness Stress and the CLER factor of Sibling Problems Events. As mentioned previously, this is a case where very similar R2s were present with both models, but both PSI factors were unable to be in one model due to the correlation between them. These relationships were represented by two models shown below in Table 9.

Table 9--Relationships between Child Life Events Factor Sibling Problems and Parenting Stress Index Factors and Maternal Demographic Variables

Model A

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
PSI Child Adaptability	.04	2.34*	.02
Maternal Education	-.38	-1.77	.08
Maternal Marital Status	.14	.62	.54
Maternal Employment Status	.18	.85	.40
Maternal Ethnicity	.19	.79	.44
Maternal Age	.03	1.36	.18

Model B

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
PSI Child Demandingness	.06	2.75**	.01
Maternal Education Level	-.34	-1.61	.11
Maternal Marital Status	.12	.54	.59
Maternal Employment Status	.17	.84	.41
Maternal Ethnicity	.11	.44	.66
Maternal Age	.04	1.82	.08

Note. Error df = 42.

Sibling Problems were represented by the events brother or sister leaving home, and/or serious illness requiring hospitalization of brother or sister. This factor involves some sibling difficulty. A higher number of Sibling Problems Events was related only to higher stress on the PSI factors.

Higher PSI Child Temperament Adaptability Stress was related to a higher number of CLER Sibling Problems. Higher Child Temperament Adaptability Stress reflects that the child does not handle changes and transitions well, is stubborn, has difficulty giving up a current task, and exhibits passive non-compliance. This behavior pattern was reported more often by mothers in relation to children having experienced a higher number of Sibling Problems. Here for example, the child may have been reacting to more attention given to brothers and sisters. By being difficult the child gains attention (bad attention being better than no attention at all). The child may have had to leave home and consequently tasks more often to go with the parent or to a babysitter if a sibling was in the hospital and may have tired of this quickly. Higher PSI Child Temperament Demandingness Stress was also related to a higher number of CLER Sibling Problems Events. With Child Demandingness, the parent experiences the child as placing many demands upon her and the child may exhibit open defiance, acts of aggression, and intrusions and demands for attention and service. A small child needs quite a bit of attention and when he/she does not get it may step up demands on the parent to focus on him/her. In addition, if a parent is preoccupied with a sibling, even the normal amount of demands that come from a preschool child may have seemed overwhelming under these circumstances.

To summarize the relationship between Child Life Sibling Problems Events and the Parenting Stress Index factors, higher Child Temperament Adaptability and higher Child Temperament Demandingness were related to a higher number of Child Life Sibling Problems Events. Young children were seen by their mothers as having more problems with adaptability and as being more demanding when siblings were ill or had to leave the home.

CLER Primary Environment Change Events. Once again, stepwise regression was used to reduce the number of factors on the PSI to reveal significant relationships between the PSI factors and Child Life Primary Environment Change Events. Multiple regression next confirmed there was a significant relationship between the Parenting Stress Index factors of Child Temperament Demandingness Stress, Parent Situational Restriction of Role Stress, Parent Situational Social Isolation Stress, Parent Situational Relationship with Spouse Stress and CLER Primary Environment Change Events. These relationships were represented by three models, shown below in Table 10. Three models were necessary due to the correlations of the PSI Parent Situational factors.

Primary Environment Change was represented by the events mother beginning work, change in father's occupation requiring increased absence from home, child beginning school, and/or child changed schools. The factor reflects a requirement for the child to adapt to a change in a primary socialization environment (family or school). A higher number of Primary Environment Change Events was related to mostly higher stress on the PSI factors, but also to lower stress on one factor of the PSI.

Lower PSI Child Temperament Demandingness Stress was related to a higher number of Child Life Primary Environment Change Events, with mothers' reports of the child as less demanding and placing less direct pressure on her seen in relation to a higher number of Primary Environment Change Events. For example, this may be related to the fact that this factor includes the events of child beginning school and/or mother beginning work. If the mother and child are not together as often, the mother will have fewer demands placed on her by the child just by virtue of the fact that the child is not physically in her presence as much.

Higher PSI Parent Situational Restriction of Role Stress, which indicates the mother may feel the parental role is restricting her freedom and frustrating her attempts to maintain her own identity as well as feeling dominated and controlled by the child's needs, was related to a higher number of Primary Environment Events. Here, mother was

Table 10--Relationships between Child Life Events Factor Primary Environment Change and Parenting Stress Index Factors and Maternal Demographic Variables

Model A

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
PSI Child Demandingness	-.10	-2.58**	.01
PSI Parent Restriction of Role	.07	2.22*	.03
Maternal Education Level	.78	2.19*	.03
Maternal Marital Status	.29	.78	.44
Maternal Employment Status	.14	.39	.70
Maternal Ethnicity	-.25	-.62	.54
Maternal Age	-.05	-1.48	.15

Model B

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
PSI Child Demandingness	-.09	-2.55**	.01
PSI Parent Social Isolation	.09	2.29*	.03
Maternal Education Level	.88	2.46*	.02
Maternal Marital Status	.27	.71	.48
Maternal Employment Status	.22	.62	.54
Maternal Ethnicity	-.47	-1.12	.27
Maternal Age	-.07	-2.07*	.05

Model C

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
PSI Child Demandingness	-.10	-2.60**	.01
PSI Parent Relationship Spouse	.09	2.09*	.04
Maternal Education Level	.84	2.34*	.02
Maternal Marital Status	.38	1.01	.32
Maternal Employment Status	.12	.33	.75
Maternal Ethnicity	-.43	-1.03	.31
Maternal Age	-.05	-1.57	.13

Note. Error df = 41

working and thus parenting may have become more of a burden. Higher PSI Parent Situational Social Isolation Stress, which indicates a low level of availability of social support for the role of parent, was related to more Primary Environment Events in the life of the child. For example, job demands may have conflicted with parenting demands.

Employers may not have been supportive of mothers' parental obligations, e.g. time off when a child was sick or when child care was not available. Higher PSI Parent Situational Relationship with Spouse Stress was related to a higher number of Primary Environment Change Events. This type of stress reflects the fact that emotional and active (e.g. physical) support from the other parent in the area of child management may be lacking or there may be an exaggerated sex role stereotype on the part of the male that child care is the work of women. In general, parenting stress in this area indicated a relationship between mother and father that was not perceived as positive and the male was not seen by the mother as available for companionship nor willing to accept the parental role responsibilities. As mentioned, one of the events which made up this factor was mother beginning work and another was father away from home due to employment. In the first instance, the father may have had a hard time accepting that his wife has a role outside of the home and child-rearing and in the second, the father was not physically available to help mother with child-rearing tasks.

To summarize the relationships between Child Life Primary Environment Change Events and the Parenting Stress Index, lower PSI Child Demandingness Stress, higher Parent Restriction of Role Stress, higher Parent Social Isolation Stress, and higher Relationship with Spouse Stress were related to a higher number of CLER Primary Environment Change Events experienced. Therefore, while the child was seen as less troublesome and demanding to the mother when the child went to school and the mother went to work, this situation may create conflict for her with respect to multiple roles and her support and relationships with adults such as employers and her spouse.

Summary for hypothesis 4. To summarize across all the findings for Hypothesis 4, the PSI factors which emerged most frequently in relation to CLER factors were Parent Social Isolation stress, Parent Restriction of Role stress, and Child Demandingness stress. These three factors were each related to three factors on the CLER. Child Distractibility Stress and Parent Attachment Stress were each related to two factors each on the CLER.

Child Adaptability Stress, Child Reinforces Parent Stress, Parent Depression Stress, Parent Sense of Competence Stress, Parent Relationship with Spouse Stress, and Parent Health Stress were each related to one factor on the CLER. Of the seven factors on the PSI related to characteristics of the parent, all seven were related to various factors on the CLER. Of the six factors on the PSI related to child characteristics, four were related to various factors on the CLER. Therefore, relationships between parenting stress and child life events showed that more relationships were present for mothers than for their children's functioning. This may suggest that the mothers of these young children carried more of the weight of life events than did their children. This could be because the events which happened to their children also included them, because they were trying to protect their children from the repercussions of life events, or because they were more sensitive as adults to events. Six of the seven factors (or types of events) on the CLER were related to factors on the PSI. The exception was Positive Events. This is in line with other research which suggests the relationship between life events and other stress measures is weaker for positive versus negative or ambiguous life events.

The life events of Loss, Family Troubles, and Primary Environment Change were associated with more factors on the PSI than were Entrance, Physical Harm, and Sibling Problems events. Specifically, with respect to Loss events, mothers felt more socially isolated and depressed, children were not seen as active, but were more reinforcing to the mother the higher the number of times an important person was lost from the family. With respect to Family Troubles, mothers felt more socially isolated, more resentful about the loss of important life roles other than parenting, less competent about parenting, better about their own health, and more securely attached to their children as the number of conflicts and trouble in the family increased. With respect to Primary Environment Change, mothers felt isolated from support for parenting, the parenting role was restricting their freedom, spousal relationships were troubled, but children were seen as less demanding of help from the mother as the number of events related to change in the roles

and the primary environment where the mother and child spent time rose. Focusing on Entrance events, mothers felt that parenting restricted their other important life roles as more new people entered the family. With respect to Physical Harm, children were seen as more demanding with requests for help, but less active, and mothers felt more of a sense of attachment to their children as the number of serious physical illnesses and injuries the preschoolers had sustained increased. Looking at Sibling Problems, children were seen as having more problems adapting to changes and were less compliant as well as more demanding of parental attention when more attention was given to other siblings in the family.

Hypothesis 5--Child Life Events Stress and Demographics

Hypothesis 5 stated there will be a significant relationship between child life events stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age; after controlling for parent-child relationship stress. Five of the seven factors on the CLER were related to the five demographic variables. Of the 35 possible relationships (7 CLER factors x 5 demographic variables), 11 were significant. Therefore, 31 percent of the total possible number of significant relationships were so. Hypothesis 5 was not accepted. The same models as used to test hypothesis 4 were used to test hypothesis 5.

CLER Loss Events. Multiple regression indicated a significant relationship between the maternal demographic variables of marital status and ethnicity and CLER Loss Events. These relationships are summarized in Table 4. Loss Events represent the temporary or permanent loss of a significant other in the child's life, mainly through marital separation and/or divorce. Being a single mother was related to a higher number of CLER Loss Events. This may for example be related to the item concerning divorce in this factor. Being White was also related to a higher number of CLER Loss Events.

CLER Entrance Events. Multiple regression revealed a significant relationship between the maternal demographic variables of marital status, employment status, age, and

ethnicity and CLER Entrance Events. These relationships are shown above in Table 5. Entrance events represent the addition of new person(s) to the child's social field such as a stepfather, grandparent, adult relative, adult friend, or a new sibling. Being a married mother was related to a higher number of Entrance Events, perhaps related to the item referring to marriage of parent to stepparent. Being an unemployed mother was related to a higher number of Entrance Events. This finding could be related to birth of a new baby or grandmother joins family. In many instances, the young mothers in this sample had moved in with their mothers. As maternal age increased, the number of Entrance Events decreased. This could be a reflection of older mothers already being married, no longer experiencing the birth of a new baby, and/or being more established on their own so that they no longer need a third adult such as their mother or another adult as a roommate to help with living expenses. In addition, being a white mother was related to a higher number of Child Life Entrance Events.

CLER Family Troubles Events. Multiple regression found a significant relationship between the maternal demographic variables of education level and ethnicity and Child Life Family Troubles Events. These relationships are shown above in Table 6. Family Troubles Events tap the impact of problems in the family on the child and included events such job loss, increased arguments between parents, and/or parent getting arrested. Being a mother with a high school education or above was related to a higher number of CLER Family Troubles Events, which for example may be related to job loss. In order to lose jobs however, one must first obtain a job. Perhaps having more education allowed one more opportunity to have a job in the first place. Being a white mother was related to a higher number of Child Life Family Troubles Events.

CLER Positive Events. Multiple regression showed a significant relationship between maternal employment status and Child Life Positive Events, shown above in Table 7. Positive Events are socially desirable events. On the CLER these items are about a decrease in number of arguments between parents, decrease in number of arguments with

parents, child has an outstanding personal achievement. Being an employed mother was related to a higher number of CLER Positive Events. Having the income of a job may have eased some of the financial burden in the family, leading to a reduction in arguing. This income may have allowed the child to engage in extra activities, increasing the chances of an outstanding personal achievement occurring. In addition, if mother and child were away from each other due to mother working, a reduction in arguing between the two may have occurred because there was less time together in which arguing could actually take place.

CLER Physical Harm Events. There were no significant relationships determined between the maternal demographic variables and Child Life Physical Harm Events, as presented in Table 8.

CLER Sibling Problems Events. There were no significant relationships found between the maternal demographic variables and Child Life Sibling Problems Events, shown above in Table 9.

CLER Primary Environment Change Events. Multiple regression showed there was a significant relationship between maternal education level and Child Life Primary Environment Change Events. This relationship is reported in Table 10. Primary Environment Change reflects the child adapting to a change in the primary socialization environment with events such as mother beginning work, and/or child beginning or changing schools. Being a mother who had at least a high school education was related to a higher number of CLER Primary Environment Change Events. As mentioned earlier, having at least a High School education may have made it more possible for the mother to secure a job. While all the children were in Head Start and therefore all had the event of beginning school, some children had been in school earlier and therefore changed schools when it came time to go to Head Start. These children could have been in school earlier because their mothers were better qualified to get a job prior to them entering Head Start than were the mothers who had less than a high school education.

Summary for hypothesis 5. To summarize hypothesis 5, having a high school education or above was related to more Family Troubles. Being married, unemployed, younger, and white was related to a higher number of Entrance events. Being educated, young, and white was related to more Primary Environment Events. Being unmarried and white was related to more Loss Events. Being employed was related to more Positive Events.

Hypothesis 6--Parenting Stress and Demographics

Hypothesis 6 stated there will be a significant relationship between parent-child relationship stress and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age; after controlling for child life events stress. Of the five demographic variables, two (marital status and employment status) were not significantly related to any of the factors on the PSI. Of the five demographic variables, three (education level, ethnicity, and age) were significantly related to six of the seven factors on the PSI. Of the possible 65 relationships (13 PSI factors x 5 demographic variables), six were significant. Therefore, nine percent of the possible number of significant relationships were so. Hypothesis 6 was not accepted.

As in hypotheses 2-5, stepwise regression was first utilized, followed by confirmation by multiple regression. In this hypothesis, the number of factors on the Child Life Events Record were reduced. Unlike hypothesis 2-5, where there was an expectation that more than one model per dependent variable might be necessary due to correlations between the PSI factors, only one model was generated per dependent variable in hypothesis 6 because the factors on the CLER were not correlated to the extent that the factors on the PSI were. Each factor of the PSI is presented separately below. The relationships are named, then a table(s) is shown, followed by an explanation and description of the relationships and variables.

PSI Child Temperament Adaptability. There were no significant relationships found between the maternal demographic variables and the Parenting Stress Index factor of Child Temperament Adaptability, shown below in Table 11.

Table 11--Relationships between Parenting Stress Index Factor Child Adaptability and Child Life Events and Maternal Demographic Variables

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
CLER Sibling Problems	2.97	2.34*	.02
Maternal Education Level	1.45	.75	.46
Maternal Marital Status	1.13	.58	.57
Maternal Employment Status	-1.50	-.81	.42
Maternal Ethnicity	-1.38	-.64	.52
Maternal Age	-.13	-.76	.45

Note. Error df = 42.

PSI Child Interactive Acceptability. There were no significant relationships between the maternal demographic variables and the Parenting Stress Index factor of Child Interactive Acceptability, shown below in Table 12.

Table 12--Relationships between Parenting Stress Index Factor Child Acceptability and Child Life Events Stress Factors and Maternal Demographic Variables

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
CLER Positive	-.42	-.89	.38
CLER Sibling Problems	1.63	1.80	.08
Maternal Education Level	.35	.27	.79
Maternal Marital Status	1.33	.99	.33
Maternal Employment Status	-.93	-.69	.49
Maternal Ethnicity	1.43	.98	.33
Maternal Age	-.004	-.03	.97

Note. Error df = 41.

PSI Child Temperament Demandingness Stress. Multiple regression showed a significant relationship between maternal age and the Parenting Stress Index factor of Child Temperament Demandingness, summarized in Table 13.

Table 13--Relationships between Parenting Stress Index Factor Child Demandingness and Child Life Events Stress Factors and Maternal Demographic Variables

Source	b	t	p
CLER Sibling Problems	2.17	2.11*	.04
CLER Primary Env.Change	-1.23	-2.00*	.05
CLER Family Troubles	.76	1.44	.16
Maternal Education Level	.56	.34	.74
Maternal Marital Status	1.60	1.04	.30
Maternal Employment Status	-.49	-.34	.74
Maternal Ethnicity	2.19	1.02	.31
Maternal Age	-.31	-2.24*	.03

Note. Error df = 40.

As maternal age increased, PSI Child Temperament Demandingness Stress decreased. As mothers became older, they reported fewer feelings that their child was demanding. Indeed, "young parents tend to earn elevated scores" (Abidin, 1990, p. 60) in this area. Lower Demandingness Stress indicates less open defiance and acts of non-compliance on the part of the child and the parent has less of the experience that the child is placing many demands on her. With an older mother, perhaps there were older children, so that the mother has then been through child rearing and was better able to understand and tolerate a child's demands than a younger mother. Even if an older mother has not had previous children, she may have had more opportunity to observe childrearing than her younger peers.

PSI Child Temperament Mood Stress. Multiple regression revealed a significant relationship between ethnicity and the Parenting Stress Index factor of Child Temperament Mood, shown in Table 14.

Table 14--Relationships between Parenting Stress Index Factor Child Mood and Child Life Events and Maternal Demographic Variables

Source	b	t	p
CLER Family Troubles	.47	1.29	.21
CLER Positive Events	-.77	-2.02*	.05
CLER Sibling Problems	.37	.53	.60
Maternal Education Level	-.77	-.70	.49
Maternal Marital Status	1.23	1.20	.24
Maternal Employment Status	1.13	1.09	.28
Maternal Ethnicity	3.09	2.07*	.04
Maternal Age	.10	1.05	.30

Note. Error df = 40.

Being a minority mother was related to higher PSI Child Temperament Mood Stress. Mood Stress is related to excessive crying, withdrawal, and depression on the part of the child. Rather than the whining dependency seen by a child high in the Temperament factor of Demandingness, this type of crying is more associated with a child displaying signs of unhappiness.

PSI Child Temperament Distractibility. There were no relationships determined between the maternal demographic variables and the Parenting Stress Index factor of Child Temperament Distractibility, shown below in Table 15.

Table 15--Relationships between Parenting Stress Index Factor Child Distractibility and Child Life Events Factors and Maternal Demographic Variables.

Source	b	t	p
CLER Loss	-1.36	-2.85**	.007
CLER Family Troubles	1.12	2.16*	.04
CLER Physical Harm	-2.75	-2.37*	.02
CLER Primary Env. Change	-.90	-1.57	.12
Maternal Education Level	-.84	-.57	.57
Maternal Marital Status	-1.24	-.81	.42
Maternal Employment Status	1.16	.85	.40
Maternal Ethnicity	1.89	.97	.34
Maternal Age	-.03	-.21	.83

Note. Error df = 39.

PSI Child Interactive Child Reinforces Parent. No significant relationships were found between the maternal demographic variables and the Parenting Stress Index factor of Child Interactive Child Reinforces Parent, as shown below in Table 16.

Table 16--Relationships between Parenting Stress Index Factor Child Reinforces Parent and Child Life Events Factors and Maternal Demographic Variables

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
CLER Loss	-.81	-2.05*	.05
CLER Entrance	.45	1.10	.28
CLER Physical Harm	-1.02	-1.06	.29
Maternal Education Level	-1.75	-1.46	.15
Maternal Marital Status	-.13	-.10	.92
Maternal Employment Status	-.26	-.23	.82
Maternal Ethnicity	1.52	.95	.35
Maternal Age	.03	.29	.77

Note. Error df = 40.

PSI Parent Personality/Pathology Depression. No significant relationships were indicated between the maternal demographic variables and the Parenting Stress Index factor of Parent Personality/Pathology Depression, as shown below in Table 17.

Table 17--Relationships between Parenting Stress Index Factor Parent Depression and Child Life Events Factors and Maternal Demographic Variables

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
CLER Loss	1.02	1.81	.08
CLER Sibling Problems	1.63	1.41	.17
Maternal Education Level	1.44	.81	.42
Maternal Marital Status	1.77	.91	.37
Maternal Employment Status	1.09	.64	.52
Maternal Ethnicity	2.75	1.37	.18
Maternal Age	.04	.25	.81

Note. Error df = 41

PSI Parent Situational Restriction of Role. No significant relationships were found between the maternal demographic variables and the Parenting Stress Index factor of Parent Situational Restriction of Role, as shown below in Table 18.

Table 18--Relationships between Parenting Stress Index Factor Parent Restriction of Role and Child Life Events and Maternal Demographic Variables

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
CLER Family Troubles	1.40	2.44*	.02
Maternal Education Level	-1.98	-1.09	.28
Maternal Marital Status	2.12	1.17	.25
Maternal Employment Status	1.99	1.16	.25
Maternal Ethnicity	4.04	1.64	.11
Maternal Age	-.20	-1.23	.22

Note. Error df = 42.

PSI Parent Personality/Pathology Sense of Competence Stress. Multiple regression showed there was a significant relationship between maternal ethnicity and the Parenting Stress Index factor of Parent Personality/Pathology Sense of Competence, shown below in Table 19.

Being a minority mother was related to higher PSI Parent Personality/Pathology Sense of Competence Stress. Mothers who do not have much practical child development knowledge, few child management skills, and/or find the parenting role less reinforcing than anticipated, all of which lead into feeling overwhelmed that the child is more than they expected, have higher Parental Sense of Competence Stress.

Table 19--Relationships between Parenting Stress Index Factor Parental Sense of Competence Competence and Child Life Events Stress Factors and Maternal Demographic Variables

Source	b	t	p
CLER Family Troubles	2.32	2.94**	.005
CLER Positive	-1.00	-1.21	.23
Maternal Education Level	-4.15	-1.77	.08
Maternal Marital Status	1.21	.54	.59
Maternal Employment Status	-.18	-.08	.94
Maternal Ethnicity	7.44	2.28*	.03
Maternal Age	.01	.06	.96

Note. Error df = 41.

PSI Parent Situational Social Isolation Stress. Multiple regression showed there was a significant relationship between the maternal demographic variables education level and ethnicity and the Parenting Stress Index factor of Parent Situational Social Isolation, as shown below in Table 20.

Table 20--Relationships between Parenting Stress Index Factor Parent Social Isolation and Child Life Events Factors and Maternal Demographic Variables

Source	b	t	p
CLER Loss	.68	1.36	.18
CLER Family Troubles	1.34	2.46*	.02
CLER Positive	-.65	-1.17	.25
Maternal Education Level	-3.31	-2.10*	.04
Maternal Marital Status	3.14	1.91	.06
Maternal Employment Status	1.68	1.09	.28
Maternal Ethnicity	7.03	3.23**	.003
Maternal Age	.07	.48	.63

Note. Error df = 40.

Being a mother with less than a high school education and a minority mother was related to higher PSI Parent Situational Social Isolation Stress. Social Isolation stress is marked by social isolation from peers, relatives, and other emotional support systems. In addition, spousal relationships are not close and there is a lack of support for attempts as parents. This finding may reflect that for example, mothers may have left school because they were pregnant and reacting to the loss of their social network of friends. Also, mothers with less than a high school education may be less able to obtain employment leading to isolation from other adults who would be present in a workplace.

PSI Parent Situational Relationship with Spouse Stress. Multiple regression showed there was a significant relationship between ethnicity and the Parenting Stress Index factor of Parent Situational Relationship with Spouse, as shown below in Table 21

Table 21--Relationship between Parenting Stress Index Factor Parent Relationship with Spouse and Child Life Events Factors and Maternal Demographic Variables

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
CLER Family Troubles	.93	1.92	.06
Maternal Education Level	-2.22	-1.44	.16
Maternal Marital Status	.83	.55	.59
Maternal Employment Status	1.84	1.27	.21
Maternal Ethnicity	4.09	2.35*	.02
Maternal Age	-.14	-1.08	.29

Note. Error df = 42.

Being a minority mother was related to higher PSI Parent Situational Relationship with Spouse Stress. Spousal supportiveness in terms of the emotional and physical support provided to facilitate parental role functioning is impaired when stress in the Parent Relationship is elevated. In addition, there may be substantial conflict in the relationship between spouses with regard to parenting.

PSI Parent Situational Health Stress. There were no significant relationships indicated between the maternal demographic variables and the Parenting Stress Index factor of Parent Situational Health, as shown in Table 22.

Table 22--Relationships between Parenting Stress Index Factor Parent Health and Child Life Events Factors and Maternal Demographic Variables

<u>Source</u>	<u>b</u>	<u>t</u>	<u>p</u>
CLER Positive	-.51	-1.14	.26
CLER Physical Harm	2.14	2.00*	.05
CLER Sibling Problems	-.61	-.71	.48
Maternal Education Level	-2.07	-1.72	.09
Maternal Marital Status	1.80	1.46	.15
Maternal Employment Status	.37	.30	.77
Maternal Ethnicity	1.49	1.10	.28
Maternal Age	.10	.93	.36

Note. Error df = 40.

Summary hypothesis 6. To summarize Hypothesis 6, of the six relationships found between the demographic variables and the PSI, the factors on the PSI were in four cases Parent Characteristics factors and two were related to the PSI Child Characteristics factors. Of the three demographic variables, ethnicity was involved in four of the six, education in one, and age in one. Being a minority was related to higher stress in the Parent Characteristics factors of Social Isolation, Relationship with Spouse, and Sense of Competence, and with the Child Characteristics factor of Mood. Having less than a high school education was related to higher Parent Social Isolation Stress. Being a younger mother was related to higher Child Demandingness Stress.

Supplemental Analyses

Additional analyses were done to further explore relationships in two areas. One was between the DIAL-R and the stress measures and the other was between the life events stress measure and the demographic variables. Relationships between the DIAL-R and the stress measures were assessed in more detail in order to more accurately place these findings within the context of existing literature. With respect to the DIAL-R and the stress measures, zero-order correlations were computed between the three events which make up the Entrance Events factor on the Child Life Events record, the items which make up the Depression factor and the Acceptability factor on the Parenting Stress Index, and the DIAL-R.

This analysis revealed that a negative relationship was present between the entrance of a sibling and the preschool child's verbal cognitive functioning, and a positive relationship was present between the entrance of a stepfather or a third adult and the child's verbal cognitive functioning. Although none of the correlations alone were significant, the relationship between the entrance of a stepfather and the child's verbal cognitive functioning was strongest, followed by the entrance of a sibling, and then entrance of a third adult. With respect to Depression and the DIAL-R, nine items make up the Depression factor and eight had positive relationships with the DIAL-R, meaning a rise in the level of stress in this area was associated with a rise in DIAL-R scores. Of these nine items, the item referring to the mother taking responsibility for her child's misbehavior was significant. One other item approached significance and this was in reference to the mother feeling that there were quite a few things which bothered her about her life. In looking at the correlations between the DIAL-R and the Acceptability factor on the PSI, of the seven items which make up this factor, five exhibited a negative relationship with the DIAL-R, meaning that lower stress in this area was correlated with higher DIAL-R scores. One item was significant and related to how quickly the child learns new things. Two other items approached significance and both were related to how much the child has remembered past

learnings and how much the child is able to do. Supplemental analysis was also conducted in order to assess more clearly the relationships between the life events and the demographic variables.

Summary

This study was designed to explore (1) the relationships between child verbal cognitive functioning and stressors in the form of life events experienced by preschool children and stressors present in the mother-child relationship; (2) the relationships between the life events of the child and the stress present in the mother-child relationship, independent of child verbal cognitive functioning; and (3) the role played by the maternal demographic variables of education level, marital status, employment status, age, and ethnicity in relation to child verbal cognitive functioning, child life events stress, and parent-child relationship stress.

Minimum R square step-wise regression and multiple regression were used to test these relationships. Using regression, with respect to the relationships between child verbal cognitive functioning, child life events, and parent-child relationship stress, the number of strong relationships was limited to one. The relationships between just child life events and parent-child relationship stress were most numerous, yielding 19 total, two of which were strong relationships. Only three demographic variables were strong predictors of child verbal cognitive functioning, child life events, and parent-child relationship stress.

The criteria for accepting or rejecting the hypotheses were: the acceptance of hypothesis 1 was based on whether the overall model was statistically significant; and the acceptance of hypotheses 2-6 was based on whether more or less than 50% of the possible number of multiple regression relationships were statistically significant. Of the six hypotheses, the three (hypotheses 3, 4, and 6) involving the demographics were not accepted, while the three (hypotheses 1, 2, and 4) involving child verbal cognitive functioning and the stress measures were accepted. The direction and amount of variance accounted for are shown in tables 23 through 25 below.

Table 23--Direction and Percent Variance Accounted for in Relationships between the DIAL-R and the PSI Factors, CLER Factors, and Maternal Demographic Variables

DIAL-R	
PSI Child Adaptability	
PSI Child Acceptability	(11%)
PSI Child Demandingness	
PSI Child Mood	
PSI Child Distractibility	
PSI Child Reinforces Parent	
PSI Parent Depression	8%
PSI Parent Attachment	
PSI Parent Restriction of Role	
PSI Parent Sense of Competence	
PSI Parent Social Isolation	
PSI Parent Relationship with Spouse	
PSI Parent Health	
CLER Loss Events	
CLER Entrance Events	8%
CLER Family Troubles Events	
CLER Positive Events	
CLER Physical Harm Events	
CLER Sibling Problems Events	
CLER Primary Environment Change Events	
Maternal Education Level	
Maternal Marital Status	
Maternal Employment Status	8%
Maternal Age	20%
Maternal Ethnicity	

Table 24--Direction and Percent Variance Accounted for in Relationships between the CLER Factors and the PSI Factors and Maternal Demographic Variables

	Loss	Entrance	FamTrb	Pos	PhyHarm	SibProb	PrimEnv
Adaptability						10%	
Acceptability							
Demandingness					15%	14%	(13%)
Mood							
Distractibility	(15%)				(11%)		
ReinforcesParent	(9%)						
Depression	13%						
Attachment			(10%)		(8%)		
RestrictionRole		10%	11%				9%
SenseCompetence			9%				
SocialIsolation	10%		13%				10%
Relationw/Spouse							9%
Health			(9%)				
Education			11%				10%
Marital Status	(18%)	13%					
Employ Status		(11%)		12%			
Age		(10%)					(8%)
Ethnicity	(8%)	(9%)	(39%)				

Table 25--Direction and Percent Variance Accounted for in Relationships between the PSI Factors and Maternal Demographic Variables

	Adapt	Accept	Demand	Mood	Distract	Reinf	Par
Education							
MaritalStatus							
EmployStatu							
Age				(10%)			
Ethnicity					8%		
	Depress	Attach	Restr	Sense	SocIsol	RelSpous	Health
			Role	Comp			
Education					(9%)		
MaritalStatus							
EmployStatu							
Age							
Ethnicity					10%	18%	11%

Note. Numbers in parentheses denote negative relationships.

Child verbal cognitive functioning

One demographic variable, maternal age, accounted for a large amount of variance (20%). A second demographic variables, maternal employment status, accounted for a moderate amount of variance (8%). Being an older, employed mother was related to higher child verbal cognitive functioning.

Two parenting stress variables, Child Acceptability (11%) and Parent Depression (8%) were moderately related to child DIAL-R scores. Being a mother who found her child acceptable, yet took responsibility for the child's misbehavior, and was somewhat dissatisfied with her life circumstances was related to higher child verbal cognitive functioning.

One life events stress factor, Entrance, was moderately related (8%) to child verbal cognitive functioning. This factor consists of the three items: entrance of stepfather,

third adult/relative, sibling. Adults entering the child's family was related to higher DIAL-R scores, while siblings entering the child's family was related to lower scores.

Child life events stress and parenting stress

In examining the relationships between child life events and parent-child relationship stress, two relationships accounted for a large amount of variance, while 17 others accounted for a moderate amount of variance. Both the Physical Harm and Child Demandingness and the Loss and Child Distractibility relationships accounted for 15% variance, although in opposite directions. The former relationship was positive while the latter relationship was negative. Children were reported to be more demanding the more often they had been hospitalized for illnesses or accidents and were reported to be less active the more often an important family member exited due to divorce, separation, hospitalization, and/or death.

The 17 moderately related sets of relationships are summarized in Table 24. The relationships between child life events and parenting stress revolved around vulnerability of the mothers' feelings in the contextual, situational factors associated with child rearing, such as social isolation, problems with role identity, and a lack of support in their relationship with their spouses. There were instances when the child appeared less buffered in the parent-child relationship with respect to life events which revolved around the child's physical well-being or other children in the family. There were also relationships between the CLER and PSI which suggested that the attachment relationship between the mother and child was resilient, even enhanced with respect to child life events.

Stress and demographics

An examination of the relationships between maternal demographics and (1) child life events and (2) parent-child relationship stress, revealed that a larger amount of variance was accounted for by the former than the latter. Two relationships between child life events factors and demographics accounted for a large amount of variance; ethnicity and Family Troubles Events (39% of the variance) and marital status and Loss Events which accounted

for 17% variance. The ethnicity and Family Troubles relationship may be explained as indicating that white families report a higher number of events such as arguing and job loss than do minority families. The marital status and Loss relationship can be interpreted as unmarried mothers having experienced separation and divorce. In addition, nine factor relationships accounted for moderate amounts of variance as may be seen in Table 24. Overall, these relationships tell us that education level was related to job and work events, employment status to family conflicting with work events, and age to normative events such as childbirth and beginning work.

In looking at the shared variance between the demographics and parenting stress, one relationship accounted for the greatest amount of variance; namely ethnicity and Social Isolation (18%). This relationship means that minority mothers reported higher levels of social isolation than did white mothers. In addition, five moderate relationships were revealed as summarized in Table 25. Minorities reported more parenting stress while whites reported more life events stress.

Direction of relationships. In looking at the direction of relationships, while in several cases "stress" was related to poorer functioning (14 instances), there were also nine instances where stress was related to more optimal functioning (see tables 23-25). Both of these situations were obtained with respect to the child's verbal cognitive functioning scores and in the relationships between child life events stress and parent-child relationship stress. Stress ultimately may be positive or negative depending upon the perception of the persons whom experience it. Earls (1986) explains:

It is not stressful circumstances, as such, that do harm to children. Rather, it is the quality of their interpersonal relationships and their transactions with the wider social and material environment that lead to problems. Although the general orientation of stress research is to consider unfavorable outcomes, stressful experiences may also facilitate the development of effective, varied coping behaviors, increase personal resources, and lead to a sense of mastery and competence... . (p. 29)

Two of these instances were seen with respect to the child's verbal cognitive functioning in that higher Parent Depression stress and more Entrance Life Events were

related to higher DIAL-R scores. The remaining instances were seen between higher numbers of child life events and lower parenting stress. Specifically, with increased Loss Events, mothers reported lower Child Distractibility and Child Reinforces Parent stress. When there were a higher number of Family Troubles Events, the mother reported less stress with respect to Attachment and Physical Health for herself. More occurrences of the child experiencing Physical Harm Events were associated with less stress with respect to the child's Distractibility and the Attachment relationship with his/her mother. And as the number of life events revolving around changes in the child's Primary Environment rose, the child was reported to be less Demanding.

CHAPTER 5 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

A number of studies have revealed relationships between child life events stress, parent-child relationship stress, and children's verbal cognitive functioning in low- and middle-income school age children. However, little is known about these relationships in preschoolers, especially in low-income children who will attend early educational intervention programs where a major emphasis is placed on language and cognitive functioning.

Purpose

The purpose of the study was to investigate the relationships between child verbal cognitive functioning, child life events stress, parent-child relationship stress, and the maternal demographic variables of education level, marital status, employment status, ethnicity, and age in low-income Head Start families.

Subjects

A total of 51 randomly selected Head Start mothers were chosen. However, since DIAL-R data were not available on two subjects, the final sample consisted of 49 subjects. Of these 49 mothers, 78% had a high school education or above, 41% were married, 51% were employed, 71% were minority, and the average age was 29 years.

Instrumentation

Child verbal cognitive functioning was measured by means of one score on the DIAL-R that represents language and concepts. Child life events stress was assessed by means of seven factor scores on the Child Life Events Record, namely: Loss, Entrance, Family Troubles, Positive, Physical Harm, Sibling Problems, and Primary Environment Change, with respect to the number of these events occurring from birth until

approximately age 5 in the child's life. Parent-child relationship stress was represented by five Likert-type responses with respect to 13 Parenting Stress Index factor scores consisting of Child Adaptability, Child Acceptability, Child Demandingness, Child Mood, Child Distractibility, Child Reinforces Parent, Parent Depression, Parent Attachment, Parent Restriction of Role, Parent Sense of Competence, Parent Social Isolation, Parent Relationship with Spouse, and Parent Health. The maternal demographic variables measured were maternal education level (high school education and above or less than high school education), marital status (married or unmarried), employment status (employed or unemployed), ethnicity (minority or white), and age (continuous).

Results

Child verbal cognitive functioning. One demographic variable, age, accounted for a large amount of variance; while four others accounted for a moderate amount of variance following regression analyses. Of these four, one was a demographic variable (employment status), two were parent-child relationship stress factor variables (Child Acceptability and Parent Depression), and one was a child life events factor variable (Entrance Events). Higher child verbal cognitive functioning was present in relation to children having mothers who were older and employed. These mothers found their preschool child acceptable, yet took responsibility for their child's misbehavior, and were mothers who were somewhat dissatisfied with their life circumstances. The families of children with higher DIAL-R scores were those with more adults in the home, but fewer children.

Child life events and parenting stress. Two relationships between child life events and parent-child relationship stress accounted for a large amount of variance (Demandingness and Physical Harm; Distractibility and Loss) while 17 others accounted for a moderate amount of variance (see table 24). Mothers of young children appeared to be quite socially isolated and were experiencing difficulty maintaining their own role identity. This was related to a lack of physical and/or psychological support from

spouse/partner or in the job arena, as well as adjustment to the entrances and exits of important family members. While mothers reported more of the stress of life events upon themselves, in many instances they were able to provide closeness with their preschool child. Even so, events focused more on the child's physical well-being or other children in the family, were areas in which children were not so easily buffered from life events.

Stress and demographics. Two relationships between demographic variables and child life events factors (marital status and Loss; ethnicity and Family Troubles) and one relationship between a demographic variable and parent-child relationship stress factor (ethnicity and Parent Social Isolation) accounted for large amounts of variance, while 14 relationships accounted for a moderate amount of variance (see tables 24 and 25). All of the demographic variables were related to the life events, with the exception of ethnicity and education which were also related to parent-child relationship stress. The relationships were of the following pattern: marital status was related to marriage and divorce events, education level to job and work events and to social isolation, employment status to family versus work events, age to normative events such as childbirth and beginning work, and with ethnicity, minorities reported more parenting stress while whites reported more life events.

Summary

The pattern that emerged from this study was that low-income, Head Start preschoolers with higher verbal cognitive functioning scores had close relationships with a greater number of significant adults. During this developmental period less stress in these children was related to characteristics of the mother such as attachment and maturity in conjunction with life events revolving around adult family members, while more stress was present in relation to the child's temperament in conjunction with life events dealing with the child or his/her siblings.

ConclusionsChild Verbal Cognitive Functioning

In the current study, five variables were significantly correlated with child verbal cognitive functioning. Child verbal cognitive functioning was higher when mothers were older, employed, more accepting of their child, more depressed with the life circumstances in which they were rearing their child but took responsibility for their child's behavior, when a relative, third adult, or stepfather entered the family, and when fewer siblings were born. These variables revolved around three areas: intrapersonal with respect to the mother's age; intimate relationships (involving the preschool child, other children in the family, stepfathers, and other relatives and adults); and the larger environment of work and community.

Each of the five variables are discussed below in the context of the existing literature in the order corresponding to the amount of variance accounted for. First discussed is maternal age, followed by Child Acceptability (PSI), Parent Depression (PSI), Entrance Events (CLER), and then maternal employment status. This is followed by an overview of conclusions about these relationships.

Maternal age

The age of the preschool child's mother accounted for a large amount of variance (20%) in the child's verbal cognitive functioning (DIAL-R) score in the current study. As the mother's age increased, so did the child's verbal cognitive functioning. This was a consistent finding in the literature on preschool children (Belmont, Cohen, Dryfoos, Stein, & Zayac, 1981; Broman, 1981; Maracek, 1980, cited in Baldwin & Cain, 1981; Oppel & Royston, 1971). One of the reasons proposed in the literature and also found in the current study, was that young mothers found their children more demanding (Field, Widmayer, Stringer, & Ignatoff, 1980; Field, 1981). Researchers believe that perceptions such as demandingness may be connected to the less than positive childrearing attitudes about parenting that have been found in younger mothers (Furstenberg, 1976) as well as less

vocalization (Osofsky & Osofsky, 1970) and fewer opportunities for stimulation (Darabi, Graham, Namerow, Philliber, & Varga, 1984).

Child acceptability

The acceptability of the child to the mother accounted for a moderate amount of variance (11%) in the child's verbal cognitive functioning score. A negative relationship was found between the amount of stress present in the parent-child relationship and the child's verbal cognitive functioning. In other words, the more acceptable the child was to the mother in terms of intellectual, behavioral, and physical characteristics, the higher the child's verbal cognitive functioning.

Acceptability taps into mother-child interaction and this reciprocity was supported by the current literature. Interaction between the mother and child could be related to preexisting features in the child or to changes in intellectual or social behavior through the mother's efforts to mold the child into one who was acceptable to her (Belsky, Lerner, & Spanier, 1984). Features of the parent such as warmth and empathy were related to how certain parents saw children (Belsky, 1981; Radin, 1971). This acceptance and positive regard may inspire confidence in the child to engage the environment with more motivation and interest (Estrada, Arsenio, Hess, and Holloway, 1987; Harter, 1983). These efforts then may be rewarded by the parent becoming more heartily involved in interaction with the child, which would keep reciprocity along positive lines operating in the parent-child system (Clarke-Stewart, 1973; Wulbert, Inglis, Kriegsmann, & Mills, 1975). Estrada et al.(1987), Radin (1971), and Wulbert et al. (1975) all found a positive relationship between warmth and acceptance and higher verbal cognitive functioning in preschoolers.

Maternal depression

Mother's feelings of depression in the context of childrearing accounted for a moderate amount of variance (8%) in the child's verbal cognitive functioning. Depression showed a positive relationship with child verbal cognitive functioning, in that a rise in the mother's Depression score on the PSI was associated with higher DIAL-R scores. It may

be important to distinguish between clinical depression and being dissatisfied with one's circumstances in life (Abidin, 1990). When the term clinical depression is used, it may conjure up ideas of individuals whose physical and emotional energy is lacking to carry out day-to-day tasks. When this goes on for long periods of time or episodes occur frequently, these persons are sometimes diagnosed as mentally ill. Mild depression, however, may be associated more with terms like "having the blues" or "feeling down in the dumps." Somewhere in between may be individuals who look around them and see inadequate housing, low pay, violence, racism, and apathy.

As researchers have pointed out, not everyone is going to live in poverty and not have feelings that researchers might label depression (Kochanska, Radke-Yarrow, Kuczynski, & Friedman, 1987; Layne, 1983). Seeing these circumstances as they are, that is, being realistic about how bad conditions are, may be necessary for any steps to be taken to change them (Lindsay-Hartz, 1984). A parent who is affluent, whose children go to a school without excessive violence and with the materials and tools necessary for learning, and is dissatisfied is likely not the same as a low-income parent who does not have these same resources and comforts. However, even within the context of poverty there are likely to be differences in levels of dissatisfaction. Low-income parents who were not as dissatisfied may not have worked as hard to change the situation as those who were unhappy with their life circumstances (Cochran & Woolever, 1983). One difference in parents cited in the literature using case studies was that many parents wanted for their children what they themselves could not attain and were concerned with what they could provide for their child (Kagan, 1986; Zelkowitz, 1982). As discussed by researchers such as Lindsay-Hartz (1984) and Tagney (1987), some level of guilt as part of depression may actually be healthy as it has been found to be linked to empathy, or concern about how one's behavior impacts on another. The parents who are more aware of these feelings may be the ones who work with their children on the skills (e.g., reading, questioning, labeling) that will help their child perform well in an academic setting. As feelings of warmth and

acceptance are part of the definition of empathy according to Feshbach (1987), depression and acceptance may operate along similar lines.

Not many studies were available with mothers who were other than clinically depressed, but there was some evidence that even in these extreme circumstances cognitive development was not adversely affected. For example, Fisher, Kokes, Cole, Perkins, and Wynne (1987) found that on a measure of cognitive competence, social compliance, and motivation, children of affectively disturbed parents fell more often into the high functioning than into the low functioning group. The most "surprising" finding according to the authors was that a trend was seen for children of psychotic parents to have more competent school behavior than children of nonpsychotic parents.

Child life entrance events

The life event of Entrance accounted for a moderate (8%) amount of variance in the child's verbal cognitive functioning score. Whether a positive or negative relationship existed depended on who the new social agent entering the family was. Other adults coming into the child's life was related to higher verbal cognitive functioning, while the addition of a new child to the family was related to the preschool child having lower verbal cognitive functioning.

Relatives. One of the persons most commonly joining the family was the grandparent. Higher child verbal cognitive functioning in relation to this event is likely to be linked to both the knowledge older persons have been found to have about childrearing (Furstenberg, 1976; Kellam, Ensminger, & Turner, 1977; Kornhaber & Woodward, 1981, Stevens, 1984) and the close nurturing relationship that researchers have found existed between grandparents and preschool children (Radin, Oyserman, & Benn, 1991; Stevens, 1984; Werner, 1991). Several researchers such as Furstenberg (1976), Kellam, Ensminger, & Turner (1977), Radin et al. (1991), and Wilson (1986) have found higher verbal cognitive performance and better school performance in young children when the grandparents were in the home. In fact, both Furstenberg and Kellam et al. found that the

mother/grandmother constellation was almost as effective as two-parent families in this regard.

Stepfathers. In the present study, having a stepfather enter the home was associated with higher verbal cognitive functioning. Little research has been conducted on the relationship between having a stepfather and children's cognitive functioning (Clingempeel, Brand, & Segal, 1987). Research which has been done has generally shown a relationship between the presence of a stepfather and better cognitive functioning, particularly for boys (Chapman, 1977; Santrock, 1972). Researchers who have looked at components of the stepfather-stepchild relationship in an effort to understand how having a stepfather can benefit a child, have observed behaviors revolving around attachment (Duberman, 1973; Wallerstein & Kelly, 1980) and authoritative parenting (Santrock, Warshak, Lindbergh, & Meadows, 1982).

Siblings. As the number of new babies being born into the family went up, the verbal cognitive functioning of the preschooler went down. There was quite consistent evidence from existing studies that this is a common finding (McCall, 1984; Nommay, 1988; Steelman & Mercy, 1980; Steelman & Powell, 1985, Svanum & Bringle, 1980). Possible explanations found in the literature for this relationship were that the interaction between the mother and father and the preschool child decreased when there were more children and even took on more negative overtones when these interactions did occur (Dunn & Kendrick, 1982; Kreppner, 1988; Lewis & Feiring, 1982). A second source of explanation revolved around the fact that present resources such as time and attention from the parent as well as material resources were "diluted" with each additional child (Polit & Falbo, 1985).

Maternal employment

The mother's employment status accounted for a moderate amount of variance (8%) of the child's verbal cognitive functioning score. The children of mothers in the current study who were employed had higher verbal cognitive functioning. Many other studies

have found this as well (Cherry & Easton, 1977; Parcel & Menaghan, 1994; Rieber & Womack, 1968; Woods, 1972; Vandell & Ramanan, 1992). This relationship appeared to revolve around three areas in the literature. One was that when the mother worked, financial means were more available for material goods such as educational resources (Hoffman, 1980). A second was that working enhanced a woman's feelings of fulfillment that may have translated into a more positive relationship with her child (Belsky, Lerner, & Spanier, 1984; Dubnoff, Veroff, & Kulka, 1978; Tebbets, 1982). Third, a woman who works may have modeled a higher level of achievement motivation for her child who then applied this to his/her own learning (Gottfried & Gottfried, 1988; Seginer, 1986).

Concluding Statements About Child Verbal Cognitive Functioning

In the present study, in some instances, "stress" was related to vulnerability exhibited in poorer verbal cognitive functioning, while in others stress was related to resilience exhibited in better functioning. As Earls (1986) states

It is not stressful circumstances, as such, that do harm to children. Rather, it is the quality of their interpersonal relationships and their transactions with the wider social and material environment that lead to problems. Although the general orientation of stress research is to consider unfavorable outcomes, stressful experiences may also facilitate the development of effective, varied coping behaviors, increase personal resources, and lead to a sense of mastery and competence... . (p. 29)

With respect to mastery and competence in the realm of child verbal cognitive functioning, warmth in a close relationship between the adult and the child was a common theme. This has been discussed in the literature on acceptability (Belsky et al., 1984; Radin, 1971; Olson, Bates, & Bayles, 1984; Clarke-Stewart, 1973), empathy as a part of depression (Feshbach, 1987; Lindsay-Hartz, 1984; Tagney, 1987); and the grandparent-grandchild (Furstenberg, 1976; Radin et al., 1991; Stevens, 1984) and the stepfather-stepchild relationship (Santrock, Warshak, Lindbergh, & Meadows, 1982; Wallerstein & Kelly, 1980).

Another area related to mastery for young children was in their mothers' engagement with the larger world of work and community. The mothers who were

dissatisfied with their lives as they were and those who worked outside of the home had children with higher verbal cognitive functioning. This has been related to taking responsibility for the child's actions (Kochanska et al., 1987), a desire to protect the well-being of the child (Zelkowitz, 1982), attain self-actualization for both themselves and their child (Kagan, 1986), bring in material resources (Hoffman, 1980; Woods, 1972), and mothers' achievement motivation being emulated by the child (Gottfried & Gottfried, 1988).

The area that had the strongest relationship with the child's verbal cognitive functioning was a characteristic of an intrapersonal nature, this was the mother's age. Researchers have found that older mothers as compared to younger mothers found their children less demanding (Field, 1981; Field et al., 1980), and they vocalized more to them (Osofsky & Osofsky, 1970; Sandler, Vietze, & O'Connor, 1981) as well as provided more opportunities for stimulation (Darabi et al., 1984).

Child Life Events and Parenting Stress

There were many relationships between child life events and parent-child relationship stress. Relationships were of two main types. There were positive relationships, seen as higher reported levels of stress in the parent-child system in relation to a higher number of life events. The majority of these positive relationships centered around the mother's relationships with other adults and in combining work and family. These type of relationships were also seen in areas related to the child or his/her siblings being physically ill. The second type was negative relationships, lower reported levels of stress in the parent-child system in relation to a higher number of life events. Here, the associations revolved around a close relationship between the mother and child and the child maintaining a sense of calm behavior with respect to disruption in relationships with other adults and the child's own physical illness.

Stress researchers often use the terms vulnerability and resiliency (Garmezy, 1983; Rutter, 1983; Werner & Smith, 1982). Those relationships in which a higher amount of

parent-child relationship stress was seen in relation to a higher number of life events will be called vulnerability. Those relationships in which a lower amount of parent-child relationship stress was present in relation to a higher number of life events will be called resiliency. Further, within vulnerability and resiliency were relationships more focused on the mother or the child. These are discussed below with concluding statements following.

Vulnerability of mothers

There were several areas of vulnerability present in the study for mothers. The two main areas were social isolation and restriction of life roles. In addition, relationships with spouses, depression, and sense of competence also showed vulnerability in mothers. The events with which higher stress was seen were those revolving around relationships with other adults and work.

Social isolation. Increased social isolation in relation to more life events was a common finding in the current study and was related to Family Troubles (13% variance accounted for), Loss, and Primary Environment Change (10% variance accounted for each). The events revolved around either relationships with important other adults or work. With respect to intimate relationships, researchers have found that social isolation was higher in relation to disruption of the marital relationship (Cochrane, 1988; Hetherington, 1988; Malley & Stewart, 1988; Weinraub & Wolf, 1988) and the death of loved ones (Cochrane, 1988; Scharlach & Fredriksen, 1993). With respect to issues of work, feelings of social isolation have been reported when jobs were lost (Fryer, 1988; Larson, 1984; Kandel, Davies, & Raveis, 1985), when husbands had increased involvement in work (Burke, Weir, & DuWors, 1979; Cotterrell, 1986; Lynn, 1974) and women also felt socially isolated when they worked if employers were not supportive of family life (Hughes & Galinsky, 1988; Galinsky, Ruopp, & Blum, 1983; cited in Hughes & Galinsky, 1988).

Role restriction. Role restriction revolves around issues about the roles a woman feels are important to her identity with respect to the type and number of roles, and conflicts

between roles. Role restriction was seen with the events of Family Troubles (11% variance accounted for), Entrance (10% variance accounted for), and Primary Environment Change (9% variance accounted for). These events revolved mainly around the formation and conflict of new roles, such as mother, spouse, and employee. Researchers have found role issues in relation to the entrance of important family members. Women have stated they felt drained by the parent-child relationship (Baruch, Barnett, & Rivers 1983; Belle, 1982; Malley & Stewart, 1988), subject to role ambiguity when they remarried (Cherlin, 1978; Hoffman, 1983; Pasley, 1987), and in conflict about being a working wife and mother (Giles-Sims, 1987; Pasley, 1987).

Depression. Mothers reported higher depression in relation to Loss events (13% variance accounted for). This is one of the most well documented relationships in the literature. Depression has been found in relation to the death of one's parents as an adult (Moss, 1993; Umberson & Chen, 1994; Yates, Fullerton, Goodrich, & Heinssen, 1989), divorce (Brown, 1988; Kandel, Daveis, & Raveis, 1985), and the mother's own illness/hospitalization (Lewis, Hammond, & Woods, 1993; Maguire, Lee, & Bevington, 1978).

Relationship with spouse. Relationship with Spouse taps into the emotional and physical support that one spouse receives from the other as parenting occurs. Relationship with Spouse stress was higher in relation to more Primary Environment Change events associated with mother and father working (9% variance accounted for). When fathers were heavily involved in work, wives have been found to be less satisfied with the marital relationship (Burke et al., 1979; Mott, Mann, McLoghlin & Warwick, 1965; Young & Willmott, 1973). When women work, men may not deal with this well, feeling they have lost status (Kessler & McRae, 1982; Rosenfield, 1980; Staines, Pottick, & Fudge, 1985, 1986), and sometimes abandoning the family to become even more deeply involved in the role of career man (Fosson, 1988). There can also be the problem of "cross-generational enmeshment" in which the mother resists separation from the child (Fosson, 1988). Also

seen is the situation in which the mother compensates for her time at work to be with the child by shutting the father out during the evenings and weekends (Cochrane, 1988), but then experiences feelings of overload and dissatisfaction (Pederson et al., 1980; cited in Belsky et al., 1984).

Sense of competence. Sense of Competence stress was higher in relation to a higher number of Family Troubles events (9% variance accounted for). These events revolved around disruption in the nuclear family unit, such as job loss and arguing among family members. Becoming unemployed has been related in the literature to a lower sense of efficacy and control (Cohn, 1978; Malley & Stewart, 1988). Arguing among family members has been found to be especially difficult for women's sense of competence as mothers and wives are the ones who most often dealt with all the family members' emotional needs, often to the exclusion of their own (Belle, 1982; Chodorow, 1978; Malley & Stewart, 1988).

Vulnerability of children

There were areas in the present study in which children's functioning broke down under life events. Specifically, there was an increase in stress in the parent-child relationship with respect to demandingness and adaptability in relation to events assessing the child's and his/her siblings' physical well-being.

Demandingness and adaptability. In the current study, as the number of times the child experienced Physical Harm events (illness or accidents that required hospitalization) rose, the mother reported that the child was more demanding, with a large amount of variance being accounted for by this relationship (15%). When the sibling was in this position, almost as strong a relationship with demandingness was seen (14% variance accounted for), along with more stress in adaptability (10% variance accounted for). Several studies have found ill children to be more demanding when compared to healthy children (Bendell, Culbertson, Shelton, & Carter, 1986; Goldberg, Morris, Simmons, Fowler, & Levison, 1990; Hausenstein, Marvin, Snyder, & Clarke, 1987; cited in Abidin,

1990) and young as compared to older children had more adverse reactions to hospitalization that can broadly be seen as separation anxiety behaviors (Wachs & Gruen, 1982; Yap, 1988). After being overprotected, ill children have been found to not want to accept more responsibility when appropriate, but demanding to have more autonomy and freedom (Leventhal & Sabbath, 1986) and that the development of the child's coping skills was deterred when overprotected (Melamed, Siegal, & Ridley-Johnson, 1988). When the sibling was the one who was ill, young children have been found to exhibit behaviors that would elicit more adult attention to themselves (Howard, 1978; Leventhal & Sabbath, 1986). Dunn & Kendrick (1982; Kendrick & Dunn, 1980) and Volling & Belsky (1992) have conducted several studies in which it was found that just the entrance of a new child was related to the present child becoming more demanding, unhappy, and difficult, with these behaviors most often seen when the mother was interacting with the sibling (Kendrick & Dunn, 1980). Having to adapt to even more attention given by the mother to the younger sibling due to illness may make these tendencies to be difficult even more pronounced in the preschool (target) child.

Resiliency of mothers

The main area in the parent-child relationship where mothers reported less stress in relation to a higher number of life events in parent characteristics was the attachment relationship with their child. One other area where less stress was reported was in the mothers' own physical health. For attachment, the events revolved around trouble in the family and the physical well being of the child; and for health, similar to attachment the event was trouble in the family.

Attachment. Less stress in attachment was found both with an increase in Family Troubles (10% variance accounted for) and Physical Harm events (8% variance accounted for). Family Troubles events revolved around job loss and arguing among family members. In the literature mothers have been found to have a better attachment relationship with the child when they were not working and spent more time with the child (Belsky,

1990; Clarke-Stewart, 1990; Owen & Cox, 1988); related to the child being more sure of his mother's responsiveness (Belsky, 1990) and psychological availability of the mother because she was less tired, felt that life was not so difficult, and was less rushed (Burke & Weir, 1976; Hoffman & Nye, 1974; Vaughn, Gove, & Egeland, 1980; Welch & Booth, 1977; Wright, 1978). With respect to more conflict between family members, there was support for mothers compensating for unsatisfying marital relationships by engaging more with the child (Belsky et al., 1984; Easterbrooks & Emde, 1988; Engfer, 1988) and protecting the child from difficult events (Camara, 1986; Fishman, 1986; Fishman, 1988; Moering, 1992). Looking at attachment and physical harm to children, when children were ill and injured and needed hospitalization, several researchers have found strong attachment relationships between the mother and the child (Bush, Melamed, & Cockrell, 1989; Fosson, 1988; Rowland, 1974).

Physical health. Not working because of job loss was an event in Family Troubles and there was evidence in the literature to support the finding that better physical health for women was present when they did not work. Belsky et al. (1984) cited research by Pleck and Rustad (1980) who found that working women slept less each night, did more hours per week of work, and that men working full-time did only one-third of the family work that women working full-time did. Several researchers have found that working women reported they either eliminated or had no free time nor time to exercise (Pleck & Rustad, 1980; cited in Abidin et al., 1984; Robinson, Converse, & Szalai, 1972; Winnett, Neale, & Williams, 1982).

Resiliency of children

Less stress in the areas of children being distractible, demanding, and reinforcing to the parent was present in the current study in relation to the life events revolving around the loss of important others, the child's physical well-being, and changes in the child's primary socializing environment.

Distractibility. The relationship between less stress in the child's level of Distractibility and the experiencing of a greater number of Loss events accounted for a large amount of variance (15%) and the relationship between less Distractibility and more Physical Harm to the child accounted for a moderate amount of variance (11%). Less Distractibility stress taps into the child being reported as less active, and research supported that this was a reaction seen in relation to the events included in Loss, such as the death of a grandparent (Tyszkowa, 1991), divorce (Arnold & Carnahan, 1990), and hospitalization of parent (Field & Reite, 1984). These events have been associated in children with grief, helplessness, sadness, emptiness, and a lack of feelings (Tyszkowa, 1991), grieving, depression, denial, repression, loss of play and enjoyment, withdrawal (Arnold & Carnahan, 1990), and decrease in activity level, depressed heart rate, and shorter periods of active sleep (Field & Reite, 1984). Children have also been found by other researchers to be less active in relation to illness and accidents (Goldberg, Morris, Simmons, & Fowler, & Levison, 1990; Kashain, Venzke, & Millar, 1981; Melamed, Siegal, & Ridley-Johnson, 1988). While children are probably going to be less physically active when ill (Goldberg et al., 1990; Leventhal & Sabbath, 1986), children have also been reported to have lost interest in play (Kashain et al., 1981) and to exhibit apathy and social withdrawal (Melamed et al., 1988).

Child reinforces parent. In addition to the distractibility of the child being reported to be less in relation to Loss, children were also seen as more reinforcing to the mother during Loss Events (this relationship accounted for 9% variance). Researchers have found that when the family unit broke apart, the mother and child were most likely to draw together (Fosson, 1988), with the child often acting as a companion to the mother (Weiss, 1975).

Demandingness. In relation to a higher number of Primary Environment Change events in which parents were working and the child was in school, the child was seen as less demanding by his/her mother (12% variance accounted for). Researchers have found

that the employment patterns of fathers changed the personal social environment of the mother in such a way that the emotional bond between child and mother was strengthened (Cotterrell, 1986) and when mothers worked they were not as worried and anxious about their children as women who did not work (Birnbaum, 1975). Belsky et al. (1984) observed that the child may enjoy the opportunity to exercise his/her newly developing autonomy which attending preschool supported.

Concluding Statements About Vulnerability in Mothers and Children

Mothers

Higher stress in the parent-child system in relation to a higher number of life events reflected two major areas of vulnerability for the low-income mothers of young children. One had to do with the exits, entrances, and strains present in her intimate relationships with important people and the other had to do with work related issues. Many relationships were present between higher stress in the parent characteristics domain of the parent-child relationship system and various life events. Higher stress in Social Isolation, Restriction of Role, Depression, Relationship with Spouse, and Sense of Competence was seen in relation to several life events. The life events with which these relationships were most often present were Family Troubles and Primary Environment Change, followed by Loss and Entrance events. In these relationships, a picture of vulnerability in mothers clearly emerged around relationships both with intimate others and in issues concerning work. The loss of relationships as well as a lack of closeness in existing relationships with adults were common themes. Further, a lack of fulfillment when work was absent from a woman's life did not necessarily come when women did work. Even when women worked they experienced rather extensive conflict between the roles of mother, wife, and employee.

Intimate relationships. Barerra (1988) discussed the Social Support Deterioration Model (Dean & Ensel, 1982; Lin & Ensel, 1984) which sheds light on how certain life events reduce the avenues or sources of social support. According to this model, social

support is impaired by life events, in that stressful life events are defined as antecedent conditions influencing distress in both a direct way, and somewhat indirectly as a portion of the effect passes through social support. Change in the structure of social relationships is related to events such as divorce, death, and other social exit events. Conversely, Fosson (1988) observed that when the addition of an important family member occurred, "boundaries must be amended, new roles assumed" (p. 167). Further, Fosson (1988) pointed out that the family has often been seen as a group of individuals who were attached and supported one another during life events, but also discussed research by Ilfeld (1982; cited in Fosson, 1988) which has also shown that stress may be experienced as a result of being a member of a particular family.

Work. The consensus of the literature was that work was important to women both economically and personally (Belsky, Lerner, & Spanier, 1984; Cochrane, 1988; Tebbets, 1982). While some women have of course worked, historically, working for women is a relatively new phenomenon at its current level; 57% of married women and 70% of single women with preschoolers (U.S. Bureau of Labor Statistics; 1988-cited in Vandell & Ramanan, 1992). However, research showed that women were somewhat ambivalent about working. When they did not work they felt unfulfilled (Malley & Stewart, 1988), yet when they did work they experienced conflict from within themselves in trying to maintain both roles (Cochrane, 1988), from their spouses (Fosson, 1988; Pasley, 1987), and from the work setting (Emlen & Koren, 1988-cited in Hughes & Galinsky, 1988; Hughes & Galinsky, 1988). As Belsky et al. (1984) have noted, mothers were most likely to feel the "strain" as they combined the roles of spouse, homemaker, employee, and parent.

Children

The areas in which children were reported as having more negative reactions to life events were not as numerous as they were for their mothers, and were events over which the mother had little control; namely physical illness in the preschool child or his/her

siblings. This vulnerability may be related to the nature of physical illness in that the child is in pain and discomfort and may react with more demandingness regardless of the mother's ability to handle the situation. On the other hand, some mothers are likely to be more overprotective than others in these situations, increasing the "normal" amount of demandingness and problems with adaptability.

When children are ill, additional attention to their needs is going to be necessary. As young children are already fairly demanding, if the mother has to do tasks for the child which he/she has recently been able to do and now no longer can or will, feelings that the demands are overwhelming is likely to be a common response (Fosson, 1988; Melamed et al., 1988). As preschoolers become more demanding and difficult when seeing the mother and new child being close (Volling & Belsky, 1992; Dunn & Kendrick, 1982), these behaviors are likely to be more common when a younger sibling is ill and even more attention is given to this smaller child (Howard, 1978; Leventhal, 1984; Leventhal & Sabbath, 1986).

Concluding Statements about Resiliency in Mothers and Children

Mothers

The resiliency of the mother in the parent-child relationship in connection with life events mainly revolved around less stress in her attachment to the child. This was perhaps one of the most encouraging findings of the study. According to Bowlby (1969; cited in Fein and Fox, 1990), attachment is a motivational-behavioral system which organizes to promote the survival of children. Ainsworth, Blehar, Waters, & Wall (1978; cited in Fein and Fox, 1990), believe that attachment disturbances start early and have a profound impact through the course of a person's life on relationships. In the current study a better attachment relationship was found in relation to life events which reflected family conflict such as job loss and arguing as well as seen when the child was physically ill. Especially with respect to physical illness, Bowlby's conceptualization of attachment would seem to be operating quite strongly. Melamed et al. (1988) have commented that "the medical

situation is an ideal environment to study maternal-child attachment" (p. 114). As Barton and Zeanah (1990) have pointed out, children's reactions may be designed to elicit attachment to adults. Melamed et al. (1988) reported on research in which children cried more when the mother was present and commented that the researchers interpreted this as a protest since the child might hold the belief that a comforting response would follow a distress signal.

The attachment relationship was also stronger in relation to more family conflict. Ainsworth's definition about attachment and interpersonal relationships fits in well here, as the mother and child became closer in their relationship as other relationships were threatened. For example as Engfer (1988) found when there was a large amount of conflict in the mother's marital relationship, the mother saw her child as a "compensatory source of comfort, love, and affection" (p. 110).

Children

Whereas the relationships involving less stress for the mother revolved mainly around a closer relationship with her child, the child seemed to withdraw behaviorally, showing a decrease in activity levels. As the scores for Child Distractibility on the PSI were not in the clinical range (Abidin, 1990) and researchers discuss "regressive" behaviors as being adaptive for children to bring their caretakers closer (e.g., Barton & Zeanah, 1990), this may suggest a normal and therefore resilient response to both the permanent and temporary loss of significant family members. In addition, the child was maintaining a closer relationship with the mother in that the child was more reinforcing to her in relation to loss events. Belsky et al. (1984) for example, with respect to one of the most common Loss events, wrote that if a divorce led to a reduction in marital conflict, this may promote sensitive parenting and optimal functioning by the child as a result of less stress on the parenting system.

The child was also seen as less demanding when the parents got jobs or became more heavily involved in work and the child went to school. This could be related to the

parent and child spending less time together for demandingess stress to arise as well as the child's willingness to go to school to exercise his/her autonomy (Belsky et al., 1984). That this would be seen as positive by the parent is quite likely as it is often a challenge to get the child to school and oneself to work on time (Hughes & Galinsky, 1988).

Demographic Variables and Stress

The final section on the relationships present in the study is devoted to the associations between the demographic variables of ethnicity, marital status, education level, age, and employment status. Please see Tables 24-25 in the summary of chapter 4 for the amount of variance accounted for by these relationships.

Ethnicity

Ethnicity, in addition to being involved in two relationships which accounted for a large amount of variance, also showed an interesting pattern. Being minority was related to a higher level of parent-child relationship stress, being white was related to a higher number of life events. With respect to parenting stress, higher stress was seen in relation to Social Isolation, Relationship with Spouse, Sense of Competence, and Child Mood. These findings were in line with other researchers who have found that black adults compared to whites were more adversely impacted by network crisis (Krause, 1987), experienced "out-of-group status" stress, among which was social isolation (Smith, 1985), felt their marriages were less harmonious and were less satisfied in their marriages (Broman, 1993), rated mothering and rearing children low in relation to life aspirations (Bassoff & Ortiz, 1984), and reported higher levels of Mood stress for their children (Hastings-Storer, 1991). On the other hand, compared to minorities whites reported higher numbers of life events with respect to Family Troubles, Entrance, and Loss. With respect to job loss and family troubles, this finding was in line with researchers who have found that whites were more impacted by the "discouraged worker" effect (Melendez & Figuero, 1992), preferred and were more motivated by internal needs (Shapiro, 1977; Jones, James, Bruni, & Sells, 1977), and that white women were disproportionately represented among

unemployment insurance exhaustees (Nicholson & Corson, 1976). Arguing among family members was an event associated with family troubles, and white families have been found to report a higher number of family problems and conflict between parent and child (Proctor, Volser, & Sirles, 1993) and to have fewer expectations for children obeying and controlling their temper (McKenry & Fine, 1993). With respect to Entrance, researchers have found white children more likely to name extended family members in their descriptions of families (Slaughter-Defoe, Kuehne, & Straker, 1992), and that there was a disintegration of the black extended family in the 1960s and 1970s (Jewell, 1988). With respect to Loss, Plateris (1973; cited in Belsky, Lerner, & Spanier, 1984), found that compared to southern whites, southern blacks had a lower divorce rate.

Marital status

Being married was related to a higher number of Entrance events. Not surprisingly, the events of separation and divorce correlated with marital status. With respect to the addition of a third adult to the family being more prevalent in families where the parents were married, other researchers have found this relationship (Cicirelli, 1984; Hashimoto, 1991). With regard to being married and the entrance of a child, researchers have found that there was still pressure to marry for some women to be accepted by the family (Clinton, 1990) and that as Moore, Hofferth, Wetheimer, Waite, and Caldwell (1981) reported, "not only was a current first birth associated with the probability of marriage, but a birth in the previous year was also related to a higher likelihood of entering marriage" (p. 44).

Education level

Having a high school education or above was related to a higher number of life events, namely Family Troubles and Primary Environment Change; conversely, having less than a high school education was related to higher Social Isolation parenting stress. With respect to more Family Troubles events (one of which is arguing, researchers have found that self-direction was more highly valued by parents with more education (Spade,

1991) and that parenting may not be as highly valued by women with more education (Steffensmeier, 1982), as well as more marital disruption among highly educated women (Houseknecht & Spanier, 1980). With respect to Primary Environment Change which revolves around working for parents and school for children, researchers have known for some time that more education means more chances for working (Furstenberg, 1976; Tebbets, 1982) and that many children now go to preschool, with 2.5 million toddlers and 3.7 million preschoolers being cared for by someone other than their mothers and fathers for most of their waking day as of 1984 (U.S. Department of Health, Education, & Welfare; cited in Belsky et al., 1984). On the other hand, more social isolation was reported by mothers with less than a high school education. This was in line with other researchers who have found that formal education was an important requirement for the social engagement of women (Lopata, 1973) and that feeling socially isolated was a reason given by young women for dropping out of school in the first place (Bruce, 1990).

Age

Being younger was related to a higher number of Entrance and Primary Environment Change events. Births appeared to be the most strongly related item in Entrance. Biologically of course, as age increases, fertility diminishes (Uchida, Araki, & Murata, 1992), but a two-thirds increase in the number of sexually active teenagers was seen starting in the 1970s (Belsky et al., 1984). One million pregnancies are with teenage women each year, with one-fifth occurring within one month of first intercourse and half within six months of the initiation of intercourse, most likely related to the fact that no birth control method was used by half of teenage women at first intercourse and 25% reporting they had never used birth control (Alan Guttmacher Institute, 1981; cited in Belsky et al., 1984). Further, the younger the mother when she has her first child, the more children she will have over the time of fertility, with the difference being an average of three more children for women who had a first birth at 15 as compared to women who waited until at least age 24. With respect to Primary Environment Change, the relationship revolved

mainly around the father being away from home because of work. Most of the research available was on the age of males, but younger women may be more likely to be involved with younger men. Several researchers have found that both younger men and women were more willing to commute (Carruthers, 1973) and would take less money to relocate (Wheeler & Miller, 1990).

Employment status

Being employed was related to a higher number of Positive events and being unemployed was related to a higher number of Entrance events. With respect to more positive events such as decreases in arguing among parents and between parents and children and more outstanding achievements for children, this relationship may be related to findings that working women were more satisfied with their lives (Tebbets, 1982), that children saw their working mothers as a positive role model to be copied (Hoffman, 1980), and that children of employed mothers who were in preschool had more opportunity for learning and being rewarded for such socially desired behaviors as sharing and waiting, as well as more chances for self-expression (Goldberg & Easterbrooks, 1984). With respect to being unemployed in relation to more Entrance events, this revolved around births of children. While about half the mothers in the study were working at the time of the data collection, having a large number of children was related to not working. This was similar to findings in which the proportion of mothers in the labor force was lower the younger the ages of the children and the larger the total number of children (Trussell, 1981) and that as fertility increased, the period of time a married woman spent working decreased (Smith-Lovin & Tickamyer, 1981).

Concluding Statements About Demographics and Stress

It may be that demographic variables can be likened to the "historical circumstances" that Belsky et al. (1984) discussed or the "environmental context" that Yogman and Brazelton (1986) referred to. Yogman and Brazelton (1986) commented that

"it is vital to consider the environmental context in which the individual family system is embedded" (p. 3).

Unexpectedly, education level did not show a significant relationship with verbal cognitive functioning. However, the measure of education was very basic and not a measure of the mother's verbal cognitive functioning, which might have had a significant relationship with child verbal cognitive functioning. In addition, there have been studies with low-income preschoolers that have found that mother's education was not related to cognitive functioning (e.g., Rose, Feldman, Wallace, & McCarton, 1991) or to success in Head Start (Scott & Smith, 1972).

There were some relationships between the demographic variable of ethnicity and life events which were somewhat surprising on the surface, even though whites have been found to experience more of the life events on life events measures (e.g., Norris, 1992). For example, white families as compared to minority families reported more third adults coming into the family. Even though researchers have discussed that the extended black family is declining (Jewell, 1988), most of the current research on the extended family was still on blacks (e.g., Wilson, 1984, 1986, 1989). However, Slaughter-Defoe et al. (1992) recommended caution in making the assumption that disadvantaged groups would be able to count on stronger extended family ties and networks.

One other finding which seemed slightly contradictory was that whites experienced the life event of job loss more than blacks. However, employment status alone does not tap into issues such as job satisfaction. Other researchers have found that whites were more motivated by intrinsic rewards such as job accomplishment while blacks preferred extrinsic rewards such as job security (Jones, James, Bruni, & Sells, 1977; Shapiro, 1977). It may be that the greater number of job losses reflected this distinction, as a recent review by Smith & Nance-Nash (1995) in Money Magazine found jobs to be plentiful in the area where the study was conducted.

Closing Thoughts about Findings

Yogman and Brazelton (1986) discussed the family and stress in the following way from a chapter entitled "The Family, Stressed Yet Protected":

The diversity of the current family is extraordinary and highlights the importance of understanding the creation of each family by its members and the influence of family structure on coping with stress. ...Once the family unit is established, the next series of tasks involves maintaining an appropriate degree of order while fostering the growth of the individual members. Each individual must balance a sense of belonging with a sense of separateness; the family system must simultaneously maintain homeostasis and yet allow transformation. (pp. 3-4)

In the current study, evidence of a very active family life for these young low-income preschool children was present. Marriages and divorces occurred, brothers and sisters were born, extended families were formed, jobs were lost and gained, people went to the hospital, grandparents died, the child went to school. The occurrence and extent of these events defined the family at one level. At another level, as these events were happening the relationship between the mother and the child was ongoing. Parenting was taking place in the midst of all these changes. The mother was dealing with her own issues, such as her relationships with important other adults and work, while she was raising her child. The child was defining who he/she is, changing and growing every day.

The child's developing verbal cognitive functioning is one area where this growth takes place. How well this task goes for the child may revolve around the mother's ability to expose and highlight those events which she feels will inspire positive gains in the child even though such events may be limited; while protecting the child from influences that may harm him/her physically and psychologically, some of which were prevalent. In looking at the findings, it can be concluded that for the most part, these mothers were able to do this. Those areas of high stress appeared to be carried by her in such a way that the child remained close to her, while experiencing and gaining from interactions with the environment, in particular, significant other adults and his/her mother.

As Rutter and others (e.g. Garmezy) have found, a close relationship with at least one adult has been linked repeatedly to children being resilient to stress. Similar to Rutter's

findings, Hess and Camara (1979) concluded that while optimal was support from both father and mother, a relationship that was warm with just one parent could promote adjustment to stressful events for the child. Another encouraging finding was that of researchers such as Furstenberg (1976) who found that the grandmother/mother relationship was almost as optimal for children as the two-parent constellation. However, in the present study, if the mother was young and there were no other adults in the home nor was she connected to the community through work for example, her small child may be more likely to experience vulnerability to stress.

Recommendations

There are issues that need to be addressed in designing a replication of the current study. With respect to the measure of child verbal cognitive functioning, the use of a more sensitive measure of verbal cognitive functioning might increase the number of significant relationships found with stress measures and demographics. The DIAL-R is considered a screening measure for determining if a child may have learning and behavior problems that would make learning exceedingly difficult. A fair amount of latitude is given to scoring the answers a child gives, as well as modeling of correct answers if a child is unable to answer correctly the first time on the DIAL-R. Even though scores on screening instruments like the DIAL-R may be more readily available because they are more likely to be a part of regular programs such as Head Start, it would be worthwhile to assess children with a more sensitive measure of verbal cognitive functioning.

With respect to the measure of life events, as with the majority of life events scales, internal reliability is not present in the literature on the CLER. As part of the pilot study, Cronbach's alpha was computed for a sample of 72 subjects and was .67, just below the recommended reliability coefficient of .70. Additional data needs to be collected and subjected to internal reliability analysis and possibly items need to be dropped until the reliability is at least .70. Dropping items should not be a problem as the instrument was not designed to reflect internal reliability in the first place. Another issue related to the CLER is

that only one factor analysis has been done and while the sample was similar in socioeconomic status, the ages of the children were kindergarten through fifth grade children (Sandler & Ramsey, 1980), rather than preschoolers. Factor analysis done with a large sample of preschoolers would show if the factors are indeed stable for this population. In addition to just measuring major life events, a measure of daily hassles would make the assessment of stress more encompassing (Johnson, 1986).

Regarding the measurement of demographic variables and child verbal cognitive functioning, the gender of the child is a variable that some researchers recommend for inclusion in the study of stress as a reflection of individual differences (e.g., Rutter, 1983). Including this variable might therefore show both a significant relationship with cognitive functioning as well as account for additional variance. Of the five demographic variables which were included, education level, marital status, and race did not have significant relationships with child verbal cognitive functioning. A better measure than education might be mother's verbal cognitive functioning as schooling could be related to social issues and community access to postsecondary education, as well as mother's verbal cognitive functioning accounting more accurately for heritability in the child's verbal cognitive functioning. That education level may not be related to cognitive functioning has also been found by some other researchers studying low-income young children (e.g., Rose, Feldman, Wallace, & McCarton, 1991; Scott & Smith, 1972). With respect to marital status, rather than just being measured as married or unmarried, this variable might be a stronger predictor of child verbal cognitive functioning if information such as cohabitation and the length of the marriage were assessed. Ethnicity may not be a useful demographic to account for variance in a child's verbal cognitive functioning. This was supported by several researchers who have more recently found that ethnicity was not related to cognitive functioning (Anthony & Etheridge, 1988; Barclay, Yater, & Lamp 1982). On the other hand, there was not an even distribution of whites and minorities in the study, as 71% were minority. Attention to drawing from both ethnic groups to have

a more evenly distributed sample may reveal relationships with child verbal cognitive functioning.

Another area that could use attention in a replication is the construction of hypotheses that reflect the complex relationships found in the present study. The use of factor scores is important for both the CLER and the PSI because individual factors are found to have positive or negative relationships with the child's verbal cognitive functioning, making the use of a total score unsuitable. In writing hypotheses, attention should also be given to the finding that even within factors on the CLER, items can have positive or negative relationships with child verbal cognitive functioning. This could have been occurring with the PSI as well, but was not assessed in the current study as the factor analysis was more solid than for the CLER, the items were not as easily separated as the events on the CLER instrument were, and it was beyond the scope of this study.

One important variable which this study did not address and should be addressed in future research is that of coping as a mediator between stress and its impact on low-income families. This could, for example, take the form of attributes such as temperament for children and/or hardiness in adults, as well as cognitive and behavioral actions such as those found in strategies like the use of altruism and sublimation.

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APPENDIX A

DEVELOPMENTAL INDICATORS FOR THE ASSESSMENT OF LEARNING-REVISED

Concepts Area

Item 1. Identifying Body Parts

- a) Say:
 - Hi, (child's name). Stand over here.
- b) OK, (child's name), show me your finger.
 - If the child does not hold up a finger, take the child's hand, locate the index finger, and say:
 - This is a finger.

Say:

- Now show me your finger.
- c) If the child shows a finger, say:
 - Good. Now put your finger on your mouth.

If the child does not respond to "mouth", gently take the child's index finger and place it on his or her mouth. Say:

- This is your mouth. Now put your finger on your eye.

Item 2. Naming Colors

- a) Spill 9 blocks (each of a different color) onto the table. Point to the red block without moving it away from the other blocks and say:
 - OK, (child's name), tell me this color.
- b) Present the other 8 colored blocks in the same way, In the order: orange; white; green; black; yellow; blue; brown; purple.
- c) If any colors are not correctly named, present those blocks in the same order and say:
 - OK, (child's name), show me _____.

Item 3. Counting (Rote)

- a) Say:
 - OK, (child's name), count for me.
- b) If the child hesitates, say:
 - You know, 1, 2, ...

If the child counts beyond 11, interrupt and say:

- That's great!

Item 4. Counting (Meaningful)

- a) Place 10 green blocks on the table.
 - 2-year level
- b) Say:
 - OK, (child's name), take one block. Put the block here.

Indicate by pointing where you want the child to place the block on the table. After child responds, replace the block in the original group.

Note: If the child responds correctly, proceed to Step c. If the child does not respond

correctly, discontinue the item.

3-year level

c) OK, (child's name), take three blocks. Put them here.

Note: If the child responds correctly, proceed to Step d. If the child does not respond correctly, return to Step b. However, do not ask the child to repeat any level.

4-year level

d) Say:

OK, (child's name), take five blocks. Put them here.

Note: If the child responds correctly, proceed to Step e. If not, return to Step b, but do not ask the child to repeat any level.

e) OK, (child's name), take seven blocks. Put them here.

Note: If the child responds correctly, proceed to Step f. If not, return to Step b, but do not ask the child to repeat any level.

5-year level

f) OK, (child's name), take nine blocks. Put them here.

Note: If the child does not respond correctly, return to Step b, but do not ask the child to repeat any level.

Item 5. Positioning

a) Shake the plastic box, remove the green block, and put the lid back on the box.

b) OK, put the block ON the box.

c) After the child responds, pick up the block and hand it to the child. Say each of the following sentence:

Put the block UNDER the box.

Put the block at a CORNER of the box.

d) Take the lid off the box and place it on the table parallel to and approximately 2 inches from the box. Say:

Put the block BETWEEN the box and the lid.

If the child does not put the block between the box and the lid, do so yourself.

e) Show me the MIDDLE one.

Item 6. Identifying Concepts

a) Stand the Concepts DIAL on the table. Turn the dial so that the picture in the 12 o'clock position is the three circles and say:

OK, show me "biggest."

If the child hesitates, continue by saying:

Put your finger on "biggest."

b) Turn the dial in a clockwise manner. Present each concept in List I, in the order indicated. If the child does not respond to a concept on List I or responds incorrectly, present the corresponding concept in List II by saying:

Put your finger on _____.

List I	List II
1. biggest	big
2. hot	
3. empty	
4. night	
5. longest	long
6. most	more
7. fastest	fast
8. littlest	little
9. cold	

10. full
11. day
12. shortest short
13. least less
14. slowest slow

Item 7. Naming Letters

4-years or older level

- a) Turn the record booklet to the list of large capital letters and place in front of child. Point to the first letter (O) and say:
OK, tell me the name of this letter.
- b) Present the other seven letters (B, P, E, R, W, Y, G) in the same way.
- c) Circle each letter the child named correctly in Steps a and b.
- d) If the child incorrectly identifies a letter or letters in Steps a and b, complete Step b and then present only those letters not correctly named in reverse order by saying:
OK, show me _____.
- e) Underline each letter the child correctly identified in Step d.

Item 8. Sorting Chips

4-year or older level

- a) OK, watch me. Then it will be your turn.
Shake the plastic bag with 18 chips in it. Spill the chips onto the table and sort them into 6 groups by putting into each group the 3 shapes (circle, triangle, and square) of the same color (red, blue, or yellow) and the same size (big or little).
Do not sort by shape. Separate the 3 groups of big chips from the 3 groups of little chips. Say nothing more to the child.
- b) Direct the child's attention to the task by sweeping your hand over the chips. Wait 5 seconds. Then replace all the chips into the plastic bag.
- c) OK, now you do what I did.
- d) Give the plastic bag containing the chips to the child.

Language Area

Item 1. Articulating

- a) Say:

Hi, (child's name).

Stand the Articulation Dial on the table and turn the dial so that the picture of a pin is in the 12 o'clock position. Say:

OK, (child's name), look at this picture. What is this?

If the child uses the wrong word, mispronounces the word, or says nothing, model the word by saying:

Say "pin."

- b) In a clockwise fashion, turn to each of the remaining fourteen pictures on the Articulation Dial and proceed as in Step a.

Item 2. Giving Personal Data

- a) OK, look at this.

Do not use the child's name in this step. Present the child's photo or a small mirror.

- b) Wait for a spontaneous response from the child. If the child does not respond, say:
Who is this?

- c) If the child uses a first name, spontaneously or not, go to Step d. If the child uses a

first and last name, spontaneously or not, go to Step e. If the child does not respond, say:

- What is your name?
- d) If the child gives only his or her first name, say:
(child's name) who?
- e) OK, how old are you?
- f) If the child is a boy, say:
Are you a boy or a girl?
If the child is a girl, say:
Are you a girl or a boy?
- g) What is your address?
If the child does not respond, ask:
Where do you live?
For your information: Accept city, state, street number, name of street, name of apartment complex, or rural route number.
- h) What is your phone number?
For your information: If the child has no phone at home, give automatic credit for this item.

Item 3. Remembering

Clapping

- a) OK, look at me. When I stop, you do what I did. Wait until I stop.
- b) Clap the following patterns and wait for a response after each:
 - A -- two claps, both at waist high
 - B -- two claps, one waist high and one overhead
 - C -- three claps, one waist high and to the side, one overhead, and one waist high and to the opposite side.

If the child does not respond after each pattern, say:

Your turn.

If the child begins to respond before you stop, do not count the pattern as correct.
Simply repeat the directions.

Numbers

- c) OK, you say what I say. Wait until I stop.
- d) Say each of the following series of numbers at the rate of one digit per second:
 - A -- 5, 3
 - B -- 7, 1, 4
 - C -- 6, 8, 2, 9

If the child does not respond, say:

Your turn.

After each series, repeat:

Wait until I stop.

If the child begins to respond before you stop, do not count the series as correct.
Simply repeat the directions.

Sentences

- e) OK, now say, "Hi there."
- f) Now say, "Hi there, have a nice day."
- g) It is fun to play outside if the sun shines.

For your information: Do not penalize the child for articulation errors.

Item 4. Naming Nouns

- a) Stand Language Dial I on the table. Turn Language Dial I so that the picture of a dog is in the 12 o'clock position. Say:
OK, what is this?
If the child does not respond, say:

This is a dog. Say "dog."

Score no points for identifying the noun "dog," which is used as an example.

b) In a clockwise fashion, turn to each of the remaining nine pictures. For each, say: OK, what's this?

Do not give the correct response as you did for the example (dog). Pause for each oral response.

c) If the child misses any noun on Language Dial I, turn the dial around to Language II. Language Dial II exposes all ten pictures to the child's view. Using Language Dial II, ask the child to identify any of the nouns that are not circled on the record booklet. Say:

OK, show me the _____.

Present the nouns in reverse order.

Item 5. Naming Verbs

a) Turn Language Dial I so that the first picture (dog) is in the 12 o'clock position. Say: OK, tell me what the dog is doing.

If the child does not respond, say:

Eating. The dog is eating. Say "eating."

Give no credit for identifying the verb "eating" because it is used as an example.

b) In a clockwise fashion, turn to each of the next two pictures. For each, say: OK, tell me what the _____ is doing.

Do not give the correct response as you did for the example (eating).

c) Continue with the next seven pictures (beginning with "car") by asking: What do you with this?

d) If the child misses any verb on Language Dial I, turn the dial over to Language Dial II, which exposes all ten pictures. Using Language Dial II, ask the child to identify any of the verbs that are not circled on the record booklet. Say,

Show me the one that _____.

Present the verbs in reverse order.

Item 6. Classifying Foods

a) OK, tell me some foods you eat.

b) If the child hesitates, say:

Tell me all the things you eat, like bread.

c) Coax as needed by saying:

More . . . more . . . more.

Item 7. Problem Solving

a) OK, what do you do when you're hungry?

If the child does not respond or gives a response that implies there is no food in the house to eat, prompt the child by asking:

What do you WANT to do when you're hungry?

Note: If the child still does not respond, discontinue the Language Area.

b) If the child did respond, continue by asking the following questions:

What do you do when you want to go into a room that is dark?

What do you do when you want to go outside but it's raining?

What do you do when you break something that belongs to someone else?

Item 8. Sentence Length

a) Count the words in the child's longest response recorded for Item 7, Problem Solving. Only the child's longest sentence receives credit for sentence length.

APPENDIX B
CODDINGTON LIFE EVENT RECORD-PRESCHOOL

Name_____

Date_____

Child's Age _____

Directions: Please say yes or no to these events happening in your child's life. If yes, please tell how many times the event has happened and the age of the child to the nearest year for each time.

1. Beginning nursery school or preschool.
yes____ no____; number of times____; age(s)____,____
2. Increase in number of arguments with parents.
yes____ no____; number of times____; age(s)____,____
3. Change in parents' financial status.
yes____ no____; number of times____; age(s)____,____
4. Birth of a brother or sister.
yes____ no____; number of times____; age(s)____,____
5. Decrease in number of arguments between parents.
yes____ no____; number of times____; age(s)____,____
6. Change of father's occupation requiring increased absence from home.
yes____ no____; number of times____; age(s)____,____
7. Death of a grandparent.
yes____ no____; number of times____; age(s)____,____
8. Outstanding personal achievement.
yes____ no____; number of times____; age(s)____,____
9. Serious illness requiring hospitalization of parent.
yes____ no____; number of times____; age(s)____,____
10. Brother or sister leaving home.
yes____ no____; number of times____; age(s)____,____
11. Serious illness requiring hospitalization of brother or sister.
yes____ no____; number of times____; age(s)____,____
12. Mother beginning work.
yes____ no____; number of times____; age(s)____,____

13. Change to a new nursery school or preschool.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
14. Change in child's acceptance by peers.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
15. Decrease in number of arguments with parents.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
16. Increase in number of arguments between parents.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
17. Serious illness requiring hospitalization of child.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
18. Loss of job by a parent.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
19. Death of a close friend.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
20. Having a visible congenital deformity (birth defect)
yes ____ no ____; number of times ____; age(s) ___, ___, ____
21. Addition of a third adult to family.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
22. Marital separation of parents.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
23. Discovery of being an adopted child.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
24. Jail sentence of parent for 30 days or less.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
25. Death of a parent.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
26. Divorce of parents.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
27. Acquiring a visible deformity.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
28. Death of brother or sister.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
29. Marriage of parent to step-parent.
yes ____ no ____; number of times ____; age(s) ___, ___, ____
30. Jail sentence of parent for 1 year or more.
yes ____ no ____; number of times ____; age(s) ___, ___, ____

APPENDIX C PARENTING STRESS INDEX

PARENT PERSONALITY ATTACHMENT

- How easy is it for you to understand what your child wants or needs?
 - very easy,
 - easy,
 - somewhat difficult,
 - it is very hard,
 - I usually can't figure out what the problem is.
- It takes a long time for parents to develop close, warm feelings for their children.
- I expected to have closer and warmer feelings for my child than I do and this bothers me.
- Sometimes my child does things that bother me just to be mean.
- When I was young, I never felt comfortable holding or taking care of children.
- The number of children that I have now is too many.

PARENT PERSONALITY DEPRESSION

- When I think about the kind of parent I am, I often feel guilty or bad about myself.
- I am unhappy with the last purchase of clothing I made for myself.
- When my child misbehaves or fusses too much I feel responsible, as if I didn't do something right.
- I feel everytime my child does something wrong it is really my fault.
- I often feel guilty about the way I feel towards my child.
- There are quite a few things that bother me about my life.
- I felt sadder and more depressed than I expected after leaving the hospital with my baby.
- I wind up feeling guilty when I get angry at my child and this bothers me.

- After my child had been home from the hospital for about a month, I noticed I was feeling more sad and depressed than I had expected.

PARENT PERSONALITY SENSE OF COMPETENCE

- When my child came home from the hospital, I had doubtful feelings about my ability to handle being a parent.
- Being a parent is harder than I thought it would be.
- I feel capable and on top of things when I am caring for my child.
- I can't make decisions without help.
- I have had many more problems raising children than I expected.
- I enjoy being a parent.
- I feel that I am successful most of the time when I try to get my child to do or not to do something.
- Since I brought my last child home from the hospital, I find that I am not able to take care of this child as well as I thought I could. I need help.
- I often have the feeling that I cannot handle things very well.
- When I think about myself as a parent I believe:
 - I can handle anything that happens,
 - I can handle most things pretty well,
 - sometimes I have doubts, but find that I handle most things without any problems,
 - I have some doubts about being able to handle things,
 - I don't think I handle things very well at all.
- I feel that I am:
 - a very good parent,
 - a better than average parent,
 - an average parent,
 - a person who has some trouble being a parent,

- not very good at being a parent.

-What were the highest levels in school or college you and the child's father/mother have completed?

Mother:

- 1-8th grade
- 9-12th grade
- Vocational or some college
- College graduate
- Graduate or professional school

Father:

- 1-8th grade
- 9-12th grade
- Vocational or some college
- College graduate
- Graduate or professional school

PARENT SITUATIONAL HEALTH

- During the past six months I have been sicker than usual or have had more aches and pains than I normally do.
- Physically, I feel good most of the time.
- Having a child has caused changes in the way I sleep.
- I don't enjoy things as I used to.
- Since I've had my child:
 - I have been sick a great deal,
 - I haven't felt as good,
 - I haven't noticed any change in my health,
 - I have been healthier.

PARENT SITUATIONAL RELATIONSHIP WITH SPOUSE

- Since having my child, my spouse (male/female friend) has not given me as much help and support as I expected.
- Having a child has caused more problems than I expected in my relationship with my spouse (male/female friend).
- Since having a child my spouse (male/female friend) and I don't do as many things together.
- Since having my child, my spouse (male/female friend) and I don't spend as much time together as a family as I had expected.
- Since having my last child, I have had less interest in sex.
- Having a child seems to have increased the number of problems we have with in-laws and relatives.

PARENT SITUATIONAL RESTRICTION OF ROLE

- Most of my life is spent doing things for my child.
- I find myself giving up more of my life to meet my children's needs than I ever expected.
- I feel trapped by my responsibilities as a parent.
- I often feel that my child's needs control my life.
- Since having this child I have been unable to do new and different things.
- Since having a child I feel that I am almost never able to do things that I like to do.
- It is hard to find a place in our home where I can go to be by myself.
- Having children has been much more expensive than I had expected.

PARENT SITUATIONAL SOCIAL ISOLATION

- I feel alone and without friends.
- When I go to a party I usually expect not to enjoy myself.
- I am not as interested in people as I used to be.
- I often have the feeling that other people my own age don't particularly like my company.
- When I run into a problem taking care of my children I have a lot of people to whom I

can talk to get help or advice.

- Since having children I have a lot fewer chances to see my friends and to make new friends.

CHILD INTERACTIVE ACCEPTABILITY

- My child looks a little different than I expected and it bothers me at times.
- In some areas my child seems to have forgotten past learnings and has gone back to doing things characteristic of younger children.
- My child doesn't seem to learn as quickly as most children.
- My child doesn't seem to smile as much as most children.
- My child does quite a few things which bother me a great deal.
- My child is not able to do as much as I expected.
- My child does not like to be cuddled or touched very much.

CHILD INTERACTIVE REINFORCES PARENT

- My child rarely does things for me that make me feel good.
- Most times I feel that my child likes me and wants to be close to me.
- Sometimes I feel my child doesn't like me and doesn't want to be close to me.
- My child smiles at me much less than I expected.
- When I do things for my child I get the feeling that my efforts are not appreciated very much.
- Which statement best describes your child?
 - almost always likes to play with me,
 - sometimes likes to play with me,
 - usually doesn't like to play with me,
 - almost never likes to play with me.

CHILD TEMPERAMENT ADAPTABILITY

- Compared to the average child, my child has a great deal of difficulty in getting used to changes in schedules or changes around the house.

- My child reacts very strongly when something happens that my child doesn't like.
- Leaving my child with a babysitter is usually a problem
- My child easily notices and overreacts to loud sounds and bright lights.
- My child's sleeping or eating schedule was much harder to establish than I expected.
- My child usually avoids a new toy for a while before beginning to play with it.
- It takes a long time and it is very hard for my child to get used to new things.
- My child doesn't seem comfortable when meeting strangers.
- When upset, my child is:
 - easy to calm down,
 - harder to calm down than I expected,
 - very difficult to calm down,
 - nothing I do helps to calm my child.
- I have found that getting my child to do something or to stop doing something is:
 - much harder than I expected,
 - somewhat harder than I expected,
 - about as hard as I expected,
 - somewhat easier than I expected,
 - much easier than I expected.

CHILD TEMPERAMENT DEMANDINGNESS

- Think carefully and count the number of things which your child does that bothers you.

For example: dawdles, refuses to listen, overactive, cries, interrupts, fights, whines, etc.

Please fill in the number which includes the number of things you counted.

- 1-3
- 4-5
- 6-7
- 8-9
- 10+

- When my child cries it usually lasts:

- less than 2 minutes,
- 2-5 minutes,
- 5-10 minutes,
- 10-15 minutes,
- more than 15 minutes.

- There are some things my child does that really bother me a lot.

- My child has more health problems than I expected.

- As my child has grown older and become more independent, I find myself more worried that my child will get hurt or into trouble.

- My child turned out to be more of a problem than I expected.

- My child seems to be much harder to care for than most.

- My child is always hanging on me.

- My child makes more demands on me than most children.

CHILD TEMPERAMENT DISTRACTIBILITY

- When my child wants something, my child usually keeps trying to get it.

- My child is so active that it exhausts me.

- My child appears disorganized and is easily distracted.

- Compared to most, my child has more difficulty concentrating and paying attention.

- My child will often stay occupied with a toy for more than 10 minutes.

- My child wanders away much more than I expected.

- My child squirms and kicks a great deal when being dressed or bathed.

- My child can be easily distracted from wanting something.

CHILD TEMPERAMENT MOOD

- My child cries and fusses:

- much less than I had expected,

- less than I expected,

- about as much as I expected,
- much more than I expected,
- it seems almost constant.

- My child seems to cry or fuss more often than most children.

- When playing, my child doesn't often giggle or laugh.

- I feel that my child is very moody and easily upset.

APPENDIX D ADMINISTRATION PROCEDURES

From 6 schools which have been randomly drawn from the city of Gainesville, 50 names was randomly drawn from Head Start Rosters (5 schools with the largest number of students and a sixth school for additional names if necessary). To these parents a phone call for those with a phone, letter to those without a phone, and a personal visit to those with no available or return address was made:

1. Introduce myself to the parent, explain that I have a letter of introduction from Alachua County Head Start.

Hello, my name is Dale Carroll. I am an evaluator for the Alachua County Head Start Program located at the Family Services Center on S. E. 11th St. (Waldo Road). I am doing a study of Head Start children's learning and the stress of being a Head Start parent. You have been randomly selected as a Head Start parent to (have the opportunity to) participate in the study. I'm here to explain what's involved and to ask you if you will agree to participate. This study will only take about 60 minutes of your time.

This study will help programs which work with preschool children and their parents. I would like to read you the letter from Alachua County Head Start and if we work together this will be yours to keep. (Read the letter.)

Everything you tell me will be kept strictly confidential. You and your child's names will never be on anything connected with this study. All information will be number coded and held in the strictest confidence.

There are two stress questionnaires to complete. One is on child stress. It is quite short and takes about ten to fifteen minutes. The other questionnaire is on parenting stress. It is a little longer and takes about one half hour to forty-five minutes. There are no right or wrong answers to the questions because they are about events that have happened to your

child and about only your individual feelings as a parent. Then I would like to verify some information from the Head Start registration form you completed in the fall.

We are also interested in how stress is related to children's learning. As a part of the Head Start program, your child is given the DIAL-R test. We would like your permission to look up your child's score on this test for this research. Before any information would be recorded from the school, a number code will be assigned and your child's name will not be connected with his/her score. This information will only be reported in group form, without any individual or even school names used. Alachua County will provide the opportunity for me to see the child's DIAL-R score if you agree. I myself am a former teacher and respect the confidentiality of school records.

If you are interested in getting feedback about your responses to the questionnaires and your child's learning once the study is completed and/or a list of stress management services provided in Alachua County, I will be glad to mail this information to you.

I would like to set up an appointment at your convenience to work with you. We need a place and time where we can have the interview somewhat free from distractions. In the past when I have interviewed parents, I have often gone to their home as that seems to be very convenient for them. If this isn't best for you, we can use the facilities at the Family Services Center which is on Waldo Road, next to Lincoln Middle School. (If these aren't acceptable, suggest an alternative until one is agreed upon. Set up the time and location).

When I arrive for the interview:

2. Hello, I am Dale Carroll. Thank you for being here! I told you on the phone, letter that I have a letter from Alachua County Head Start showing their support for the study. I would like to share this with you. (Give the parent a copy and read the letter). (Ask the parent where she would like to sit and sit down). I would like to go over the form for you to sign giving your informed consent/permission to be in this study. (Read the informed consent to the mother and have her sign a copy. Give the parent an unsigned copy for her

records.)

3. Begin with the demographic verification from the Head Start registration form.

I would like to check on some of the background information you provided on the Head Start registration form.

Is your educational level completed correct? (state the level given) Is your employment status completed correct? (state the status) Is the number of parents in the home you indicated correct? (state the status). Is your age correct? (state the age). Is your ethnicity correct? (state the ethnicity). (Make any changes.) Thank you.

4. Remind the parent that there are two questionnaires and the length of time they take to administer. Give the first instrument (rotate the Coddington Life Events Record-Preschool and the Parenting Stress Index). Here the LER-P is first.

There are two questionnaires we will complete. One is on child stress and takes about ten-fifteen minutes. The other is on parenting stress and takes about forty-five minutes to complete.

We will begin with the questionnaire on child stress. I will read a list of events that sometimes happen to preschool children. I would like for you to tell me if this experience has ever happened to your child. If it has, I will ask you how many times it has happened in his lifetime and how old the child was each time it happened. The first experience is ...

4. After completing the first instrument, start the second instrument, here the PSI.

Now, we will complete the questionnaire on parenting stress. I am going to ask you to listen as I repeat a list of statements about parenting, with respect to your Head Start child and you. Please choose and mark the answer that best describes your feelings about these statements. I am going to give you an administration booklet, an answer sheet, and a pencil. There are directions and an example on the administration booklet which we will go over. Please remember not to write on the administration booklet. Let's look at the directions on the administration booklet now ...

5. When both instruments are completed, ask the mother if she has any questions and

thank the parent for her participation. Provide a sign-up sheet for follow-up information for those mothers who are interested. Remind the parent of the names and phone numbers on the informed consent.

APPENDIX E INFORMED CONSENT

The Effects of Daily Living on Children's Learning

We would like to invite you to participate in a research study to learn more about daily living and children's learning. Your name was randomly selected from Head Start. This research will help programs for preschool children and their parents. The purpose of this study is to get a better understanding of the impact that the stresses of daily living have on your child's life, your relationship with your child, and on your child's learning. If you decide to participate in this study, your involvement will take no more than 1 hour of your time. We will ask you a series of questions about experiences your child may have had and about parenting issues. We will obtain your child's score on the DIAL-R with permission from both you and the school system. We will ask you to verify the accuracy of demographic data on the Head Start registration form. There are no right or wrong answers on any of the instruments. There are no expected risks or benefits from your participation, because this is a questionnaire study and not a study where any program or services are offered.

Your participation is completely voluntary and you will be free to stop at any time with no penalty. Your child's grades or class standing will not be affected in any way if you decide to stop or if you decide not to participate further. The DIAL-R score will be obtained from school records. All information will be number coded and kept confidential. Before information from your child's record is taken from the school system, his or her name will be removed and replaced with a number code. You and your child's identity will not be revealed and results will only be reported in the form of group data.

Do you have any questions? Any concerns?

If you have any questions or concerns later, please feel free to contact us.

Dale Carroll
Foundations of
Education Dept.
University of Florida
Phone: 392-0724

Gordon Greenwood
Foundations of
Education Dept.
University of Florida
Phone: 392-0724

Please return the bottom part and keep the top part of this form.

The Effects of Daily Living
on Children's Learning

Please read the paragraph below. If you agree, please check the boxes that you agree with and sign your name.

I have read and I understand the procedure described above and I have received a copy of this description.

I agree to participate in this research study voluntarily and without pay.

I understand this written consent gives my permission for the release of my child's DIAL-R score.

I understand that any information about me or my child will be kept confidential through a coding system and will be used only for this research project.

Signature_____ Date_____

APPENDIX F
ZERO-ORDER CORRELATIONS

CORRELATION ANALYSIS

26 'VAR' Variables: DIALR1 EDGRP MS ES AGE RACEGRP
 F1 F2 F3 F4 F5 F6
 F7 ADAPT ACCEP DEMAND MOOD DISTR
 REINF DEPR ATTACH RESTR SENSE SOCISOL
 RELSPOUS PARHLTH

Simple Statistics

Variable	N	Mean	Std Dev	Sum
DIALR1	49	39.89796	11.25878	1955
EDGRP	49	0.51020	0.50508	25.00000
MARITALSTATUS	49	0.40816	0.49659	20.00000
EMPLOYMENTSTATUS	49	0.51020	0.50508	25.00000
AGE	49	28.91837	5.57837	1417
RACEGRP	49	0.71429	0.45644	35.00000
F1LOSS	49	1.22449	1.57143	60.00000
F2ENTRANCE	49	1.16327	1.14286	57.00000
F3FAMILYTROUBLES	49	1.79592	1.83689	88.00000
F4POSITIVE	49	1.77551	1.44720	87.00000
F5PHYSICALHARM	49	0.28571	0.57735	14.00000
F6SIBLINGPROBLEMS	49	0.24490	0.72257	12.00000
F7PRIMARYENVIRON	49	2.87755	1.26874	141.00000
ADAPTABILITY	49	26.83673	6.13510	1315
ACCEPTABILITY	49	13.34694	4.12084	654.00000
DEMANDINGNESS	49	20.08163	5.07378	984.00000
MOOD	49	11.14286	3.10242	546.00000
DISTRACTIBILITY	49	24.83673	4.58415	1217
REINFORCESPARENT	49	10.26531	3.58106	503.00000
DEPRESSION	49	20.42857	5.55278	1001
ATTACHMENT	49	13.22449	3.96477	648.00000
RESTRICTIONROLE	49	20.04082	5.80215	982.00000
SENSECOMPETENCE	49	29.73469	7.11447	1457
SOCIALISATION	49	13.51020	4.89099	662.00000
RELATIONSHIPSPOUSE	49	19.38776	4.92788	950.00000
PARENTHEALTH	49	13.08163	3.77402	641.00000

Simple Statistics

Variable	Minimum	Maximum
DIALR1	2.00000	59.00000
EDGRP	0	1.00000
MS	0	1.00000
ES	0	1.00000
AGE	17.00000	41.00000

RACEGRP	0	1.00000
F1	0	6.00000
F2	0	5.00000
F3	0	7.00000
F4	0	6.00000
F5	0	2.00000
F6	0	4.00000
F7	0	5.00000
ADAPT	16.00000	44.00000

CORRELATION ANALYSIS

Simple Statistics

Variable	Minimum	Maximum
ACCEP	7.00000	23.00000
DEMAND	9.00000	33.00000
MOOD	5.00000	18.00000
DISTR	15.00000	33.00000
REINF	6.00000	18.00000
DEPR	10.00000	37.00000
ATTACH	7.00000	25.00000
RESTR	9.00000	33.00000
SENSE	16.00000	50.00000
SOCISOL	6.00000	25.00000
RELSPOUS	10.00000	34.00000
PARHLTH	5.00000	21.00000

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 49

	DIALR1	EDGRP	MS	ES	AGE	RACEGRP	F1
DIALR1	1.00000 0.0	0.27313 0.0576	0.16038 0.2710	0.26946 0.0612	0.39095 0.0055	-0.07471 0.6099	0.08728 0.5509
EDGRP	0.27313 0.0576	1.00000 0.0	0.14917 0.3063	0.26500 0.0657	0.11122 0.4468	0.10328 0.4801	-0.09482 0.5170
MS	0.16038 0.2710	0.14917 0.3063	1.00000 0.0	-0.10001 0.4941	0.30558 0.0327	-0.30200 0.0349	-0.28005 0.0513
ES	0.26946 0.0612	0.26500 0.0657	-0.10001 0.4941	1.00000 0.0	-0.07364 0.6151	-0.07746 0.5968	-0.04232 0.7728
AGE	0.39095 0.0055	0.11122 0.4468	0.30558 0.0327	-0.07364 0.6151	1.00000 0.0	-0.31209 0.0290	0.14948 0.3053
RACEGRP	-0.07471 0.6099	0.10328 0.4801	-0.30200 0.0349	-0.07746 0.5968	-0.31209 0.0290	1.00000 0.0	-0.17013 0.2425
F1	0.08728 0.5509	-0.09482 0.5170	-0.28005 0.0513	-0.04232 0.7728	0.14948 0.3053	-0.17013 0.2425	1.00000 0.0
F2	0.03370 0.8182	-0.00295 0.9840	0.39406 0.0051	-0.21950 0.1297	-0.17760 0.2222	-0.26816 0.0625	-0.11364 0.4369

F3	0.24678 0.0874	0.18193 0.2109	0.18458 0.2042	0.11457 0.4331	0.18742 0.1972	-0.59281 0.0001	0.31212 0.0290
F4	0.10085 0.4905	-0.01105 0.9399	0.07218 0.6221	0.30247 0.0347	0.13446 0.3570	-0.03604 0.8058	0.18752 0.1970
F5	0.09432 0.5192	-0.08165 0.5770	-0.05190 0.7232	0.13268 0.3634	-0.06376 0.6634	-0.07906 0.5892	-0.02624 0.8579
F6	0.10045 0.4923	-0.17824 0.2204	0.12205 0.4035	-0.00699 0.9620	0.16529 0.2564	-0.03610 0.8055	-0.06777 0.6436
F7	0.05015 0.7322	0.32710 0.0218	0.11405 0.4352	0.22957 0.1126	-0.10447 0.4750	-0.06167 0.6738	-0.09042 0.5367
ADAPT	-0.12692 0.3848	0.01400 0.9240	0.15909 0.2749	-0.08685 0.5529	0.02030 0.8899	-0.08396 0.5663	-0.11497 0.4315
ACCEP	-0.21431 0.1392	0.00327 0.9822	0.15333 0.2929	-0.17690 0.2240	0.03479 0.8124	0.12026 0.4105	-0.23105 0.1102
DEMAND	-0.05456 0.7097	-0.05724 0.6961	0.06092 0.6776	-0.08163 0.5771	-0.20586 0.1559	0.10924 0.4550	-0.13299 0.3623
MOOD	0.07617 0.6029	0.05888 0.6878	0.11011 0.4513	0.00570 0.9690	0.08014 0.5841	0.16183 0.2666	-0.13064 0.3709

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 49

	DIALR1	EDGRP	MS	ES	AGE	RACEGRP	F1
DISTR	-0.09156 0.5315	0.00973 0.9471	-0.02503 0.8645	0.07272 0.6195	-0.09096 0.5342	0.07681 0.5999	-0.29269 0.0413
REINF	-0.21272 0.1423	-0.14551 0.3185	0.05499 0.7075	-0.09943 0.4967	-0.04269 0.7708	0.09832 0.5015	-0.27366 0.0571
DEPR	0.23532 0.1036	0.14326 0.3261	0.05613 0.7017	0.08383 0.5668	0.10338 0.4796	0.11508 0.4311	0.18214 0.2104
ATTACH	-0.16843 0.2473	0.02484 0.8655	0.15354 0.2922	-0.02718 0.8529	-0.16682 0.2519	0.20887 0.1498	-0.19886 0.1708
RESTR	0.08011 0.5842	-0.00725 0.9605	0.06640 0.6503	0.14915 0.3064	-0.18077 0.2139	0.02810 0.8480	0.00583 0.9683
SENSE	-0.04976 0.7342	-0.12388 0.3964	-0.00409 0.9777	-0.12968 0.3745	-0.06145 0.6749	0.07240 0.6210	0.01103 0.9400
SOCISOL	0.08533 0.5599	-0.09914 0.4980	0.09260 0.5268	-0.01480 0.9196	0.01759 0.9045	0.15998 0.2722	0.17453 0.2304
RELSPOUS	-0.03832 0.7938	-0.07277 0.6193	-0.09156 0.5315	0.13649 0.3497	-0.25347 0.0789	0.23553 0.1033	0.02888 0.8438

PARHLTH	0.12327	-0.19718	0.13748	-0.08788	0.06761	0.01382	-0.02774
	0.3988	0.1745	0.3462	0.5482	0.6444	0.9249	0.8499

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 49

	F2	F3	F4	F5	F6	F7	ADAPT
DIALR1	0.03370 0.8182	0.24678 0.0874	0.10085 0.4905	0.09432 0.5192	0.10045 0.4923	0.05015 0.7322	-0.12692 0.3848
EDGRP	-0.00295 0.9840	0.18193 0.2109	-0.01105 0.9399	-0.08165 0.5770	-0.17824 0.2204	0.32710 0.0218	0.01400 0.9240
MS	0.39406 0.0051	0.18458 0.2042	0.07218 0.6221	-0.05190 0.7232	0.12205 0.4035	0.11405 0.4352	0.15909 0.2749
ES	-0.21950 0.1297	0.11457 0.4331	0.30247 0.0347	0.13268 0.3634	-0.00699 0.9620	0.22957 0.1126	-0.08685 0.5529
AGE	-0.17760 0.2222	0.18742 0.1972	0.13446 0.3570	-0.06376 0.6634	0.16529 0.2564	-0.10447 0.4750	0.02030 0.8899
RACEGRP	-0.26816 0.0625	-0.59281 0.0001	-0.03604 0.8058	-0.07906 0.5892	-0.03610 0.8055	-0.06167 0.6738	-0.08396 0.5663
F1	-0.11364 0.4369	0.31212 0.0290	0.18752 0.1970	-0.02624 0.8579	-0.06777 0.6436	-0.09042 0.5367	-0.11497 0.4315
F2	1.00000 0.0	0.33377 0.0191	-0.10334 0.4798	-0.07217 0.6222	0.07671 0.6003	0.27270 0.0580	0.11679 0.4242
F3	0.33377 0.0191	1.00000 0.0	0.32723 0.0217	0.21328 0.1412	0.16401 0.2601	0.31981 0.0251	0.08202 0.5753
F4	-0.10334 0.4798	0.32723 0.0217	1.00000 0.0	0.37757 0.0075	0.33259 0.0195	0.24568 0.0888	0.00752 0.9591
F5	-0.07217 0.6222	0.21328 0.1412	0.37757 0.0075	1.00000 0.0	0.32817 0.0213	-0.00813 0.9558	-0.04537 0.7569
F6	0.07671 0.6003	0.16401 0.2601	0.33259 0.0195	0.32817 0.0213	1.00000 0.0	-0.14841 0.3088	0.32408 0.0231
F7	0.27270 0.0580	0.31981 0.0251	0.24568 0.0888	-0.00813 0.9558	-0.14841 0.3088	1.00000 0.0	-0.12574 0.3893
ADAPT	0.11679 0.4242	0.08202 0.5753	0.00752 0.9591	-0.04537 0.7569	0.32408 0.0231	-0.12574 0.3893	1.00000 0.0
ACCEP	0.09831 0.5015	-0.02898 0.8433	-0.08099 0.5801	-0.02502 0.8645	0.24374 0.0915	-0.18297 0.2082	0.59313 0.0001
DEMAND	0.11622 0.4265	0.08006 0.5845	-0.03717 0.7998	0.21234 0.1430	0.34675 0.0147	-0.21849 0.1315	0.64294 0.0001
MOOD	0.00504	-0.03133	-0.16439	-0.08142	0.06771	-0.06956	0.50256

0.9726 0.8308 0.2590 0.5781 0.6439 0.6348 0.0002

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 49

	F2	F3	F4	F5	F6	F7	ADAPT
DISTR	0.10858 0.4577	0.00338 0.9816	-0.06531 0.6557	-0.21815 0.1321	0.08780 0.5486	-0.08590 0.5573	0.41608 0.0029
REINF	-0.00571 0.9689	-0.07394 0.6136	-0.13299 0.3623	-0.10796 0.4603	0.13539 0.3536	-0.14402 0.3235	0.61459 0.0001
DEPR	-0.12944 0.3754	0.14765 0.3113	0.10555 0.4704	0.07798 0.5943	0.18618 0.2002	-0.05154 0.7251	0.39043 0.0055
ATTACH	0.05151 0.7252	-0.11658 0.4250	-0.11085 0.4483	-0.21063 0.1463	0.06040 0.6801	0.10498 0.4728	0.32529 0.0226
RESTR	0.18120 0.2128	0.24123 0.0950	0.12269 0.4010	0.16436 0.2591	0.10192 0.4859	0.21012 0.1473	0.12602 0.3882
SENSE	0.03362 0.8186	0.21098 0.1456	-0.01805 0.9021	-0.06738 0.6455	0.10206 0.4853	0.00556 0.9698	0.35458 0.0124
SOCISOL	0.05933 0.6855	0.14865 0.3080	0.07833 0.5927	0.05059 0.7299	0.09360 0.5224	0.13114 0.3691	0.11739 0.4218
RELSPOUS	-0.03367 0.8183	0.04345 0.7669	0.12055 0.4093	0.10670 0.4656	0.10149 0.4877	0.12105 0.4074	0.35013 0.0137
PARHLTH	-0.03214 0.8265	-0.05765 0.6940	-0.06142 0.6750	0.20898 0.1496	0.02307 0.8749	-0.13710 0.3475	0.04378 0.7652

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 49

	ACCEP	DEMAND	MOOD	DISTR	REINF	DEPR	ATTACH
DIALR1	-0.21431 0.1392	-0.05456 0.7097	0.07617 0.6029	-0.09156 0.5315	-0.21272 0.1423	0.23532 0.1036	-0.16843 0.2473
EDGRP	0.00327 0.9822	-0.05724 0.6961	0.05888 0.6878	0.00973 0.9471	-0.14551 0.3185	0.14326 0.3261	0.02484 0.8655
MS	0.15333 0.2929	0.06092 0.6776	0.11011 0.4513	-0.02503 0.8645	0.05499 0.7075	0.05613 0.7017	0.15354 0.2922
ES	-0.17690 0.2240	-0.08163 0.5771	0.00570 0.9690	0.07272 0.6195	-0.09943 0.4967	0.08383 0.5668	-0.02718 0.8529
AGE	0.03479 0.8124	-0.20586 0.1559	0.08014 0.5841	-0.09096 0.5342	-0.04269 0.7708	0.10338 0.4796	-0.16682 0.2519
RACEGRP	0.12026 0.4105	0.10924 0.4550	0.16183 0.2666	0.07681 0.5999	0.09832 0.5015	0.11508 0.4311	0.20887 0.1498

F1	-0.23105 0.1102	-0.13299 0.3623	-0.13064 0.3709	-0.29269 0.0413	-0.27366 0.0571	0.18214 0.2104	-0.19886 0.1708
F2	0.09831 0.5015	0.11622 0.4265	0.00504 0.9726	0.10858 0.4577	-0.00571 0.9689	-0.12944 0.3754	0.05151 0.7252
F3	-0.02898 0.8433	0.08006 0.5845	-0.03133 0.8308	0.00338 0.9816	-0.07394 0.6136	0.14765 0.3113	-0.11658 0.4250
F4	-0.08099 0.5801	-0.03717 0.7998	-0.16439 0.2590	-0.06531 0.6557	-0.13299 0.3623	0.10555 0.4704	-0.11085 0.4483
F5	-0.02502 0.8645	0.21234 0.1430	-0.08142 0.5781	-0.21815 0.1321	-0.10796 0.4603	0.07798 0.5943	-0.21063 0.1463
F6	0.24374 0.0915	0.34675 0.0147	0.06771 0.6439	0.08780 0.5486	0.13539 0.3536	0.18618 0.2002	0.06040 0.6801
F7	-0.18297 0.2082	-0.21849 0.1315	-0.06956 0.6348	-0.08590 0.5573	-0.14402 0.3235	-0.05154 0.7251	0.10498 0.4728
ADAPT	0.59313 0.0001	0.64294 0.0001	0.50256 0.0002	0.41608 0.0029	0.61459 0.0001	0.39043 0.0055	0.32529 0.0226
ACCEP	1.00000 0.0	0.57355 0.0001	0.44417 0.0014	0.52030 0.0001	0.77575 0.0001	0.33024 0.0205	0.38915 0.0057
DEMAND	0.57355 0.0001	1.00000 0.0	0.39497 0.0050	0.47083 0.0006	0.50444 0.0002	0.50527 0.0002	0.45165 0.0011
MOOD	0.44417 0.0014	0.39497 0.0050	1.00000 0.0	0.25949 0.0718	0.44844 0.0012	0.40271 0.0041	0.28188 0.0497

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 49

	ACCEP	DEMAND	MOOD	DISTR	REINF	DEPR	ATTACH
DISTR	0.52030 0.0001	0.47083 0.0006	0.25949 0.0718	1.00000 0.0	0.44306 0.0014	0.32364 0.0233	0.36886 0.0091
REINF	0.77575 0.0001	0.50444 0.0002	0.44844 0.0012	0.44306 0.0014	1.00000 0.0	0.37448 0.0080	0.55184 0.0001
DEPR	0.33024 0.0205	0.50527 0.0002	0.40271 0.0041	0.32364 0.0233	0.37448 0.0080	1.00000 0.0	0.42516 0.0023
ATTACH	0.38915 0.0057	0.45165 0.0011	0.28188 0.0497	0.36886 0.0091	0.55184 0.0001	0.42516 0.0023	1.00000 0.0
RESTR	0.15798 0.2783	0.44572 0.0013	0.04596 0.7538	0.23054 0.1110	0.20301 0.1618	0.49929 0.0003	0.40079 0.0043
SENSE	0.48926 0.0004	0.53274 0.0001	0.26321 0.0677	0.46496 0.0008	0.54660 0.0001	0.62311 0.0001	0.56200 0.0001

SOCISOL	0.17709 0.2235	0.38866 0.0058	0.23399 0.1056	0.19892 0.1706	0.18599 0.2007	0.53182 0.0001	0.48495 0.0004
RELSPOUS	0.35231 0.0130	0.50948 0.0002	0.22251 0.1244	0.34316 0.0158	0.42613 0.0023	0.52903 0.0001	0.44650 0.0013
PARHLTH	0.16559 0.2555	0.28470 0.0474	0.31570 0.0271	0.10073 0.4910	0.15868 0.2762	0.34922 0.0139	0.20064 0.1669

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 49

	RESTR	SENSE	SOCISOL	RELSPOUS	PARHLTH
DIALR1	0.08011 0.5842	-0.04976 0.7342	0.08533 0.5599	-0.03832 0.7938	0.12327 0.3988
EDGRP	-0.00725 0.9605	-0.12388 0.3964	-0.09914 0.4980	-0.07277 0.6193	-0.19718 0.1745
MS	0.06640 0.6503	-0.00409 0.9777	0.09260 0.5268	-0.09156 0.5315	0.13748 0.3462
ES	0.14915 0.3064	-0.12968 0.3745	-0.01480 0.9196	0.13649 0.3497	-0.08788 0.5482
AGE	-0.18077 0.2139	-0.06145 0.6749	0.01759 0.9045	-0.25347 0.0789	0.06761 0.6444
RACEGRP	0.02810 0.8480	0.07240 0.6210	0.15998 0.2722	0.23553 0.1033	0.01382 0.9249
F1	0.00583 0.9683	0.01103 0.9400	0.17453 0.2304	0.02888 0.8438	-0.02774 0.8499
F2	0.18120 0.2128	0.03362 0.8186	0.05933 0.6855	-0.03367 0.8183	-0.03214 0.8265
F3	0.24123 0.0950	0.21098 0.1456	0.14865 0.3080	0.04345 0.7669	-0.05765 0.6940
F4	0.12269 0.4010	-0.01805 0.9021	0.07833 0.5927	0.12055 0.4093	-0.06142 0.6750
F5	0.16436 0.2591	-0.06738 0.6455	0.05059 0.7299	0.10670 0.4656	0.20898 0.1496
F6	0.10192 0.4859	0.10206 0.4853	0.09360 0.5224	0.10149 0.4877	0.02307 0.8749
F7	0.21012 0.1473	0.00556 0.9698	0.13114 0.3691	0.12105 0.4074	-0.13710 0.3475
ADAPT	0.12602 0.3882	0.35458 0.0124	0.11739 0.4218	0.35013 0.0137	0.04378 0.7652
ACCEP	0.15798	0.48926	0.17709	0.35231	0.16559

	0.2783	0.0004	0.2235	0.0130	0.2555
DEMAND	0.44572 0.0013	0.53274 0.0001	0.38866 0.0058	0.50948 0.0002	0.28470 0.0474
MOOD	0.04596 0.7538	0.26321 0.0677	0.23399 0.1056	0.22251 0.1244	0.31570 0.0271

CORRELATION ANALYSIS

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 49

	RESTR	SENSE	SOCISOL	RELSPOUS	PARHLTH
DISTR	0.23054 0.1110	0.46496 0.0008	0.19892 0.1706	0.34316 0.0158	0.10073 0.4910
REINF	0.20301 0.1618	0.54660 0.0001	0.18599 0.2007	0.42613 0.0023	0.15868 0.2762
DEPR	0.49929 0.0003	0.62311 0.0001	0.53182 0.0001	0.52903 0.0001	0.34922 0.0139
ATTACH	0.40079 0.0043	0.56200 0.0001	0.48495 0.0004	0.44650 0.0013	0.20064 0.1669
RESTR	1.00000 0.0	0.59227 0.0001	0.73925 0.0001	0.57141 0.0001	0.45652 0.0010
SENSE	0.59227 0.0001	1.00000 0.0	0.71045 0.0001	0.68101 0.0001	0.46016 0.0009
SOCISOL	0.73925 0.0001	0.71045 0.0001	1.00000 0.0	0.63299 0.0001	0.54622 0.0001
RELSPOUS	0.57141 0.0001	0.68101 0.0001	0.63299 0.0001	1.00000 0.0	0.34328 0.0157
PARHLTH	0.45652 0.0010	0.46016 0.0009	0.54622 0.0001	0.34328 0.0157	1.00000 0.0

BIOGRAPHICAL SKETCH

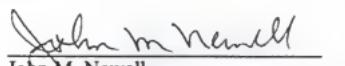
Lilla Dale McManis received a bachelor's degree in child development and a master's degree in education from the University of Georgia, after which she taught exceptional children for several years. She returned to her hometown of Gainesville, to pursue a doctorate in educational psychology from the University of Florida. While at the University of Florida she taught courses on child development to prospective teachers and worked as an evaluator for a social services program for disadvantaged families. She would like to apply her doctorate to both public and private organizational work and would eventually like to own and operate an educational consulting business. She has a husband and one child.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

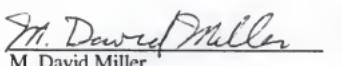


Gordon E. Greenwood
Gordon E. Greenwood, Chair
Professor of Foundations of Education

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This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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